American Aviation

MANAGEMENT
ENGINEERING
OPERATIONS
MAINTENANCE
EQUIPMENT

RECEIVED 1952

OCT. 13
1952

William M. Allen, president, Boeing Airplane Co. 17

First flights due for 19 models 13

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Fokker trainers size up the market 18

★

Widgeon souped up for corporate users 22

REFERENCE COPY

Multiple production sources pay off 73

★

35 cents

LITTLE MOTOR IN A TOUGH SPOT

That's it framed there on the left—a Honeywell standard model actuator.

Looks kind of tiny, doesn't it, next to the "Major," the giant Pratt & Whitney engine it serves aboard a Boeing Stratocruiser?

It may be little, but it's certainly not delicate.

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A letter addressed to Dept. 407 (AV), Honeywell Aero Division, Minneapolis 13, Minnesota, will bring you full facts about our actuator line.

MINNEAPOLIS **Honeywell**

Aeronautical Controls

AIRTRENDS

There will be a new top-level shake-up in the Air Force before the first of the year. Sweeping changes will take place at Air Materiel Command in Dayton as well as at headquarters in the Pentagon.

•

Outcome of the Presidential election may influence choice of a new head for the Air Transport Association. Meeting to choose an ATA president is slated for New York October 15, but one member wants the meeting postponed until after November 4 because the availability of one individual prominent in the running for the ATA post could be affected by whether Stevenson or Eisenhower becomes president.

•

Although business and agricultural flying, as well as air taxi and charter operations, increased in 1951 over the last survey two years earlier, general aviation activity declined 23%. In 1951 8,488,000 hours were flown, as against 11,031,000 in 1949. Main reason for the over-all drop was the phasing-out of GI flight training and the decrease in sport and pleasure flying.

•

During the next 10 years passenger miles will increase by 300%, number of take-offs and landings will double, and 30% more planes will be in operation, according to an extensive study by Cornell Aeronautical Laboratory.

•

The B-52, now in production at Seattle, may also be built at the Boeing plant in Wichita. Air Force officials are convinced that if a second source for the eight-engine jet bomber is required, the Kansas plant can stop production of B-47's and switch over. Lockheed-Marietta and Douglas-Tulsa, they believe, would be able to take care of all the Stratojets needed.

•

Northwest Airlines is definitely looking for some new equipment, but possible lease of some of Eastern's Constellations is holding up a final decision. Douglas and Lockheed sales representatives are trying to persuade NWA to buy DC-6's and Super Constellations.

•

Many airline officials are still pressuring CAB for upward fare adjustments, pointing out they are getting along at present rates only because of high load factors. These load factors, brought about by high business activity, military spending and the fact that 1952 is an election year, could drop only a few points and cause many carriers to go into the red.

•

Final recommendations on which types and quantities of machine tools this country will need as part of the long-range mobilization are to be made by ODM's Advisory Committee on Production Equipment by year's end. The group, headed by Harold Vance, board chairman of Studebaker, also includes Clay P. Bedford, president of Chase Aircraft, and Gen. K. B. Wolfe, former USAF Deputy Chief of Staff-Materiel.

•

If presently planned airline mergers go through, all domestic trunklines with the exception of Continental should be subsidy-free, according to CAB's revised subsidy separation report. Among the mergers CAB considered in making the analysis was Chicago & Southern and Northeast with Delta, and Colonial with either Eastern or National.

•

Another new American engine in the 10,000-pound class is the still-unannounced Westinghouse J-40-W10, which will produce that much thrust without the use of an afterburner. The recently announced Westinghouse J-40, which has the "equivalent of 25,000 horsepower at today's jet flight speeds," is the dash 8.

The Washington View

New Study On Plane Types

Acting Aircraft Production Board chairman William L. Campbell has said he will return to civilian life at the end of the month and the Campbell-proposed "staff study" to reduce the number of military plane types has been shelved for all practical purposes—but the furor may not be completely over.

It is true that USAF Under Secretary Roswell L. Gilpatric and other military members of the APB in effect told Campbell that the military would make the decision on what plane types would be built, and it is true that the USAF and Navy are continuing with the A-18 schedule to attain 126-wings and 16 carrier groups plus supporting elements by the end of 1955. But it is equally true that another report to cut down on aircraft types, this one by the Research and Development Board, is on the way. And this time, Gilpatric may have a little more difficulty ignoring the recommendations.

As a matter of fact, some reports have it that the R&DB has already submitted a draft to the Navy and Air Force, but this version supposedly was returned for "further study," i.e., probably to make it conform.

Campbell, incidentally, is a lone dissenter in feeling the APB staff study is not dead. He said that report would still come up for discussion at APB meetings after he leaves the DPA agency.

Politicians In The Sky

Although the Democrats and Republicans have no hesitancy about claiming the other party's candidates are shortsighted about many things, no charge can be made against either Stevenson and Sparkman or Eisenhower and Nixon that they don't recognize the fact that the airplane is the form of transportation that will enable them to be seen by as many voters as possible.

Both major parties are using air transportation to a greater extent than ever before in U.S. political history. The Big Four alone, for example, as of September 30, have flown the candidates almost 50,000 miles and the smaller trunks are also getting some of the gravy. The "whistle-stop" is rapidly becoming the "prop stop."

Nobody Cares?

Government mobilization officials are getting worried about the lack of interest shown by many firms in applying for rapid tax write-off certificates for plants to produce vital aircraft parts.

The current goal for aircraft plants under the DPA certificate of necessity program, for example, is $1,330,000,000, but about $200 million in approvals is still unsought.

DPA has also set expansion goals for certain types of tapered aluminum sheet for jet planes, specialized electric motors, precision optical equipment, and is working up goals for aluminum castings and forgings, as well as for specialized refinery equipment for making aviation gasoline.

Although companies which ask to build plants to produce these items would be permitted to amortize most of the cost of the construction and machinery in five rather than 20-25 years for tax purposes, in many cases the applications have been rather limited. One big reason, of course, is that these additional facilities will not be fully utilized except during emergencies and will therefore generally be unprofitable.

If the present tendency continues, Defense Mobilizer Henry H. Fowler and his colleagues are planning to explore other methods of getting private firms to build the plants required only in war emergencies. Special loans and other contractual arrangements will be studied. But Fowler, while stating he is opposed to Government-built facilities, admits that may turn out to be the ultimate solution.

Another Bureau?

If the Republicans should manage to gain control of the House and Senate in the coming election, there may be an attempt to set up some sort of machinery outside the Taft-Hartley Law to handle labor disputes, especially those in essential industries like aircraft production and airline transportation.

Outside of the Mediation and Conciliation Service in the case of plane builders and the National Mediation Board where airlines are concerned, the Government has no permanent body to make recommendations for settlement of disputes.

Such a body did exist in the case of the old Wage Stabilization Board but Congress, fed up with WSB's handling of the steel case, eliminated the group's power to settle disputes.

At present, whenever mediation attempts by one of the two agencies fail, the President inevitably has to set up some fact finding or arbitration panel and in most cases the recommendations of the panel are not binding. So if either the company or the labor union is dissatisfied, a strike can be continued or begun.

. . . Robert M. Loebelson

Sure footing for the "*Cutlass*"

(Photo courtesy U.S. Navy)

First-line U.S. Navy shipboard jet, the Chance Vought "CUTLASS" relies on Goodyear landing equipment for safe, sure stops.

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American Aviation

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ABP

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DIVISION OF GENERAL MOTORS INDIANAPOLIS, INDIANA

When & Where

Oct. 14-15—Airport Development & Operation Conference, Hotel Onondaga, Syracuse, N. Y., sponsored by N. Y. State Dept. of Commerce.

Oct. 20-24—American Society of Travel Agents, 22nd Annual Convention, Miami.

Oct. 21—National Safety Council, Air Transport Section, Conrad Hilton Hotel, Chicago.

Oct. 26—Fifth Annual Air Fair & Open House, Los Angeles International Airport.

Oct. 26-29—National Defense Transportation Association, 7th Annual Convention, Statler Hotel, New York.

Oct. 27-30—Air Transport Association, Purchasing Committee, Drake Hotel, Chicago.

Oct. 28-29—Transport Aircraft Hydraulics System Conference, sponsored by Vickers, Inc., Hotel Park Sheraton, Detroit.

Oct. 28-30—American Institute of Electrical Engineers, Middle Eastern District, Hotel Commodore Perry, Toledo, Ohio, and semi-annual meeting of Air Transportation Committee of AIEE.

Nov. 6-7—Society of Automotive Engineers, National Fuels & Lubricants Meeting, The Mayo, Tulsa, Okla.

Nov. 11-12—Piper Distributors Annual Meeting, Lock Haven, Pa.

Nov. 17-20—Air Traffic Conference, Semi-Annual Meeting, Camelback Inn, Phoenix, Ariz.

Nov. 17-20—National Aviation Trades Assn., Annual Convention, Hollywood-Roosevelt Hotel, Los Angeles.

Nov. 18-20—National Assn. of State Aviation Officials, Annual Meeting Tides Hotel, St. Petersburg Beach, Fla.

Dec. 3-5—Aviation Distributors & Manufacturers Assn., 10th Annual Meeting, Kenilworth Hotel, Miami Beach, Fla.

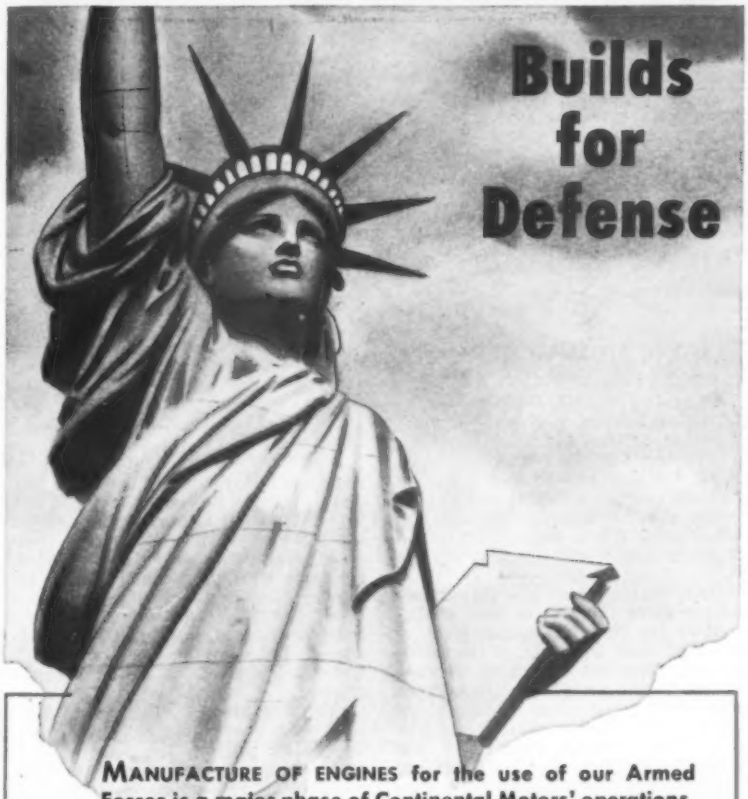
International

Oct. 21—IATA Traffic Conferences, Nice.

Oct. 21—ICAO, Aerodromes, Air Routes and Ground Aids Division (AGA), Montreal.

Dec. 1—IATA, Technical Committee, Brussels.

CONTINENTAL



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Letters

Letters should be addressed to The Editor, American Aviation Magazine, 1025 Vermont Ave., N.W., Washington 5, D. C. Anonymous letters will not be printed, but names will be withheld upon request.

ALASKAN EXPERTS

To the Editor:

I read with interest your article on Alaska in the September 1 issue of the AMERICAN AVIATION. May I congratulate you on having done a thorough job of investigation and developed it into an excellent presentation. During the past 20 years I have read a good many articles on Alaska written by "experts" who spent from five days to three weeks developing their "expert" opinion. You did a very much better job than most of these others turned out. You stuck to one phase and went into it very thoroughly.

JOHN W. WHITE
Regional Director
Pan American World Airways, Inc.

THE $3,000 STORY

To the Editor:

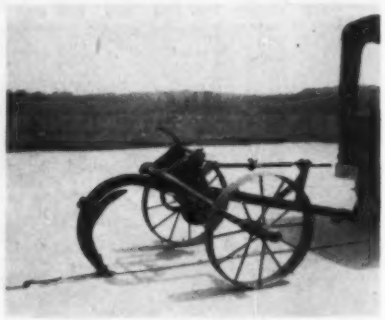
In the July 9, 1951, issue of AMERICAN AVIATION I noted with great interest your article entitled "Home-Made Plow Cuts Runway Costs." The information provided by this article was certainly very timely since this airport was shortly to begin the process of cleaning and resealing 228,000 feet of expansion and contraction joints in its concrete runways.

When this project was begun we found the same thing to be true as discovered by the Nebraska Department of Aeronautics that, in many of the wider joints the Tennant Model G groover could not do the job adequately without several passes being made at each joint. Those who are familiar with the operation of this grooving machine I am sure will be aware of the high cost per foot of cleaning which results from having to pass over each joint more than once. From experimentation with this machine we readily saw that it was necessary to devise a less expensive method of preliminary joint cleaning.

The use of a motor grader for this purpose would have been ideal, but being in the position of most medium- and small-size airports we had neither this piece of equipment nor the funds available to purchase it. The high cost of rental would have been prohibitive.

After a great deal of thought, investigation, and experimentation I came across a second-hand piece of farm equipment called a sub-soiler. Although it was not self-powered it could be drawn by a jeep or tractor, which are usually standard equipment on any airport, regardless of size.

As illustrated in the enclosed photograph, a sub-soiler has only one blade mounted on a rigid arm to which the cutting blade is attached. The downward pressure necessary for plowing is created by the pull of the prime mover on the tongue, which in turn forces the plow-point down into the joint, the axle acting as the fulcrum. The pressure can be increased or decreased by the depth regulator, operated from a crank. Since the sub-soiler is operated as a drag, there is no necessity for having a flexible plow arm. After the plow-point is inserted in the crack it is only necessary to keep the sub-soiler relatively astradle of the joint.



Subsoiler

The particular sub-soiler used on this airport project was manufactured by Oliver and carried in their catalog as Oliver Subsoiler #2. The blade we found to be most effective was the Va. Toothpick 2½".

On our project we found the sub-soiler very effective for cleaning joints, and in many instances found it to be better for final cleaning than the Tennant Model G Groover. Where the old sealing compound had decomposed considerably we found it much more satisfactory than the grooving machine for final cleaning, not only because the compound could be removed more thoroughly, but also the sides of the joints were not spalled as when using the groover.

This sub-soiler was purchased at little more than scrap price and used on the entire project, the only additional cost being for plow points, which amounted to approximately $18.00. Figured on the rate at which the Tennant cutter blades were expended where used on this project, there was a direct savings of approximately $800 and an additional saving due to the much more rapid cleaning by the sub-soiler.

This saving, along with other economies, permitted the successful completion of the re-sealing project at a savings of more than $3,000 below the engineer's estimate. Needless to say, such economies are necessary at the small airport to permit operating profits or at least reduce the financial burden of the airport to the community it serves.

In passing through many airports in the East I have noted a definite need for better sealing of concrete runways. Oftentimes this job is neglected because of its high cost and the fact that it could be classified as preventive maintenance. In other words, it is sometimes difficult to see why such a large sum of money should be spent when there are no cracks in the concrete or whole concrete sections which have broken through. However, these breaks are the end result of an imperfect joint seal which has permitted the penetration of surface water to the sub-base course. I feel that by simplifying and thus lowering the costs of joint cleaning through such methods as described in the foregoing paragraph, many airports will find themselves in a better position to do this essential job of maintenance.

RICHARD E. MOONEY,
Manager
Smith Reynolds Airport
Winston-Salem 1, N. C.

SABENA'S TOURISTS

To the Editor:

Your article on trans-Atlantic tourist class was interesting, but Mr. Martens who sent you answers to several questions has asked me to point out that he said in his answer of July 31 to your first question, "Our revenue for the three months under consideration almost doubled in comparison with last year." By some typographical twist, this turned into "tripled" in the article.

Earlier in the article, there was reference to the period of winter season fares beginning November 1. These lowest-of-the-year tourist rates end on March 31, instead of April 30.

May I add that your roundup of airline opinion brought out some interesting opinions in the field and another such "roundup" might be interesting a little later when there has been time to evaluate results of this first session.

GEORGE HERRICK
Director of Public Relations
SABENA Belgian Air Lines
New York

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF

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3. The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: None.

4. Paragraphs 2 and 3 include, in cases where the stockholders or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: Not required.

LEONARD EISERER,
(Signature of business manager)

Sworn to and subscribed before me this 22nd day of September, 1952.

J. RUSSELL SHEFFER,
Notary Public.
(My commission expires March 9, 1955)

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KNOW-HOW
American has handled more cargo than any other airline

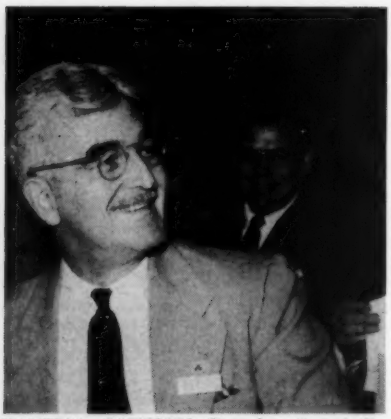
AMERICA'S LEADING AIRLINE

AMERICAN AIRLINES INC.

MRS. J. O. MOXNESS, left, above, shown with Jake Moxness, manager-domestic commercial sales, Douglas Aircraft Co., Inc. At right are Sidney Stewart, president, Chicago and Southern Air Lines, and Herbert C. Dobbs, director-Latin American sales division, Eastern Air Lines.

MRS. SAM IRWIN glances toward the camera, and her husband, general manager-export division, Curtiss-Wright Corp., follows suit. Between them stands Peter Redpath, vice president-sales, Canadair Ltd. At far right is Dick Spater, TWA district sales manager in Geneva.

IATA Meets in Switzerland



CAMERA CATCHES Douglas Campbell, vice president and general manager of Pan American-Grace Airways, in an expansive mood. Behind him is Bill Peabody, Paris representative of National Airlines.

THE Eighth Annual General Meeting of the International Air Transport Association in Geneva last month voiced the views of 67 member airlines of over 45 nations. Major topic of discussion and action was the world-wide pattern of international rates and fares. Swissair showed traditional Swiss hospitality to delegates during the week-long session.

IN EARNEST conversation are Dr. Albert Plesman, president, KLM, and Capt. J. C. Kelly-Rogers, assistant general manager-technical, Aer Lingus.

Editorial

Dutch Brains

AMSTERDAM

ONE of the oldest and most distinguished names in aircraft manufacturing around the world is Fokker, the Dutch firm founded many years ago by the late Anthony Fokker. During World War II the Fokker plant was blasted to bits but the plucky Dutch were not to be bested. As soon as the war was over a new Fokker plant was begun and the results to date have been quite creditable. In addition to producing its own designs Fokker repaired and modified a large number of C-47's for airline use and is currently building over 300 British jet Meteors for the Dutch Air Force.

by W. W. P.

But now Fokker is very much in the limelight in the United States. Fairchild Aircraft Division heard about several intriguing Fokker aircraft designs, sent a team of officials to Amsterdam, and in less than a week signed up a package licensing deal involving not one or two, but five Fokker designs. It is a good agreement. If Fairchild can sell orders in the U. S., both companies benefit. If nothing comes of the effort, it was still a worthwhile two-country effort.

The brains behind Fokker since the war is a very alert, personable, and intelligent former pilot by the name of P. J. C. Vos, who escaped to England during the German occupation. Knowing that a small company in a small country could not stand a chance of competing against the British and Americans for the latest military types, Vos directed the energies of Fokker engineers toward aircraft types which others were passing up.

One of these is a side-by-side, two-seat jet trainer, called the S-14, a slick article much needed by the U. S., which Fairchild will endeavor to sell to the USAF. Another is the F-27 local service transport, a 28-32 seater which is only now in the design stage, and intended to hit the DC-3 replacement market. Designed for both turboprop and piston engines, the Fokker feeder liner is a major entrant into the commercial market, providing Fokker and/or Fairchild can obtain initial support from buyers.

We think this Fokker-Fairchild collaboration is healthy and is a sign of the times. Not all of the aeronautical engineering brains by any means are in the U. S. and in Britain. The Dutch have always been skilled technicians and the present agreement is somewhat similar to the deal completed last year between Continental Motors and the French Turbomeca company. The western world needs to cooperate and collaborate. The U. S. has production facilities which can easily utilize the engineering brains of Europe.

Can It Hold Together ?

GENEVA

It would not be quite right to say that the International Air Transport Association which has just concluded its eighth annual assembly in this lake city of Switzerland faces an immediate crisis threatening its continued existence, but the delegates from 67 airlines of 45 countries were nonetheless made painfully aware of the constant pressures and problems which put the organization to strong tests.

For example there is a growing conflict between small carriers and large ones on the matter of fares. There is even a challenge by one government—Argentina—which threatens to upset the IATA tariff structure. The issues must be resolved, or IATA faces an untenable and chaotic tariff situation which would void the very things which IATA was set up to accomplish.

Small carriers, usually operating smaller and slower equipment than the trunk carriers, quite understandably want fare differentials in their favor, especially within their local regions. So far the trunk carriers have looked with sympathy on these requests, although the U. S. Civil Aeronautics Board, with its customary lack of realism on international matters, has indicated it will look with disapproval on further concessions to regional carriers.

Then there is the Argentine problem. That government ordered its own airline to offer lower fares on services to adjoining countries, using top-flight equipment. If fare differentials are to apply to first class equipment, and should spread much further than they have now spread, the entire IATA fare structure could well be affected seriously.

There is no certainty that these two matters will become critical. Much will be decided at the IATA traffic conference meetings in Cannes this month. But there is no use overlooking the potential troubles inherent in the two issues described above. It is a question of where to draw the line. A little is satisfactory, a little more might be too much.

There is another serious problem facing the world airlines and this is the Universal Postal Union and its recommendations for sharp cuts in mail pay. The airlines were not given an opportunity to state their case at the UPU Brussels conference. The UPU action was high handedly taken by government officials ill-informed on air transportation. Governments are making money out of air mail. Yet UPU proposes to slash air mail pay to carriers without proposing to pass on a single benefit to the public by reducing airmail postage.

But a look at the eighth assembly in Geneva indicates that IATA is healthy and alert to the problems which mean its survival. All operators know that if IATA cannot solve its problems, or solve prob-

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lems in which carriers are directly involved, the alternative is complete handling of all problems by governments—a fate worse than death. IATA has resolved more than one serious crisis since 1945 and it is to be hoped that it will solve the current ones.

Swissair proved to be an admirable host to the world's airlines. It was, perhaps, the best organized meeting to date. As an observer we might suggest to Mr. Gordon McGregor, president of Trans-Canada and president-elect of IATA, that IATA sessions should be more informal and conducive to more informal discussions. Too much formality snuffs out easy exchange of opinions. Canada should be an equally good host and we were pleased that Mr. McGregor is to be the next president; he certainly has risen to the top rank as one of the ablest airline executives of the world.

Courage Plus

GENEVA

A few years ago at the height of his career, John C. Leslie, administrative vice president of Pan American World Airways, was stricken by polio. Paralyzed from the neck down, his friends despaired that John Leslie would ever again return to his office. But they reckoned without the indomitable courage of John and his devoted and attractive wife, Jean.

John Leslie was determined that this unfortunate bit of fate would not end his career. Overcoming handicaps that most people consider hopeless, he began going to his office in a wheelchair. Then he flew to Washington on business. This year he returned to the International Air Transport Association in Switzerland, as a delegate, flying both ways across the Atlantic. Wheelchair or not, paralyzed or not, John Leslie's brain functions perfectly and he is back in old form as an able, clear-thinking, top-flight airline executive. His many friends were glad to see him. We join in expressing great admiration for personal courage and for a guy who refused to give up.

. . . WAYNE W. PARRISH

Another security fiasco: "guided missiles" . . .
. . . 19 new military models taking to air

OUR NOMINATION for the harebrain of the year is the Navy file in Korea, whoever he might be, who played up the launching of some pilotless Grumman F6F fighters as the start of a new era of push-button warfare, employing the euphemistic term "guided missile."

Running him a close second is the lightweight who originally classified the project "secret."

The secret business is another classic example of the consistent stupidity the military has maintained in its security classifications. Just what is secret about a remotely controlled obsolete airplane playing Kamikaze is hard to understand. Remote operation of drone aircraft was fully discussed in the public prints, with official sanction, as long ago as 1946, when three USAF drone B-17's were flown from Hawaii to California. The television apparatus, by which the pilot of the "mother" plane can observe the instrument panel of the drone, was also released officially.

We repeat what we have said often before in these dispatches: that idiotic security classifications such as this one tend to ridicule the whole business of military security and make it harder to maintain secrecy on legitimately classified projects.

Once the security was broken, however, the Navy in Korea climbed on the bandwagon and started popping off about the start of the new era and the first use of a "guided missile" in combat. Aside from the fact that the drone F6F bears about as much resemblance to a true guided missile as a slingshot, it was not by any means the first such use in combat. It came, as a matter of fact, just seven and a half years after the first combat drone flights.

The Navy itself experimented briefly with bomb-carrying drones during World War II, but dropped the project as impracticable. The Air Force used drones with moderate success against targets in Germany in early 1945, using Boeing B-17's and Convair B-24's. And in 1952 it suddenly became a big Navy secret.

There is certainly nothing wrong with trying the drone in Korea; it serves as a useful combat proving ground for the electronic guidance systems which may be adapted to real guided missiles. But it is morally wrong to tell the poor, uninformed public, which doesn't known an F6F from a Matador, that the guided missile era has arrived. It could also have a boomerang effect when the Navy (and the Air Force, too) go to Congress next year and ask for a big pile of change to buy some of those old, obsolete klunkers which use human crews.

•

THE NEXT FIFTEEN MONTHS will see quite a bit of activity in the new airplane department. No fewer than 19 new types will make their initial flights during that period. Here is the line-up:

BOMBERS

• **Boeing B-47C:** A four-engine version of the now well known Stratojet. Should fly before the end of 1952.

• **Martin B-57A:** USAF version of the British English Electric Canberra, twin-jet light bomber. Will fly next spring.

• **Douglas A3D:** Twin-jet, carrier-based Navy attack bomber. Now completed and going through final preparations for first flight, which should come before the end of the year.

• **Douglas RB-66:** USAF reconnaissance version of the A3D. Will fly next spring.

• **Convair XB-60:** Second prototype of the swept-wing, eight-jet version of the B-36. Flight date indefinite, since the Air Force is considering several proposals for changing the configuration, possibly to turboprop power. Airframe now completed. Whatever the configuration, it should fly some time next year.

FIGHTERS

• **North American XF-100:** A scaled-up, greatly advanced version of the F-86 Sabre, presumably supersonic. Should fly shortly after the first of the year.

• **McDonnell XF-101:** Long range, jet escort fighter based on the design of the experimental, swept-wing XF-88. Will fly late next year.

• **Republic XF-103:** Advanced, high performance interceptor. Flight late in 1953.

• **Convair F2Y:** Seaplane jet fighter. Flight next spring.

• **Convair XF-102:** Delta-wing, supersonic USAF interceptor, advanced version of the XF-92. Should fly next fall.

TRANSPORTS

• **Lockheed C-130:** Four engine, turborprop military transport. Flight some time next year.

• **Lockheed R7V-2:** Navy turboprop Constellation. Flight next summer.

• **Lockheed RC-121C:** USAF Constellation modified for use as early-warning picket plane. Flight next summer.

• **Douglas YC-124B:** Turboprop version of Globemaster. Flight next spring.

• **Convair C-131:** Piston-powered USAF version of Convair-Liner for use as evacuation transport. Should fly next fall.

• **Convair R3Y:** Turboprop, water-based transport. Flight next spring.

MISCELLANEOUS

• **Piasecki XH-16:** Huge, 40-passenger helicopter. Flight before end of 1952.

• **Bell X-2:** Rocket-powered special research plane designed for speeds close to 2,000 miles per hour. Should fly next spring.

• **Douglas X-3:** Advanced special research plane with design speed even greater than that of the X-2. Should fly late next year.

. . . JAMES J. HAGGERTY, JR.

B.F.Goodrich

Photo Courtesy Northwest Airlines, Inc.

Brings down the cost of bringing down a Stratocruiser

IN LESS than three years, 54 Boeing Stratocruisers have flown more than 80 million miles, have carried more than 1,400,000 passengers. These famous double-decked skyships are used by four major airlines. And every plane is equipped with B. F. Goodrich Expander Tube brakes. One big reason: to keep down landing costs.

B. F. Goodrich Expander Tube brakes last longer because the braking action covers a full circle, spreading the wear more evenly. Retractor spring action eliminates wear due to drag. Ventilated shoe dissipates heat more rapidly, adding to the life of the parts. Many parts found in other brakes are eliminated. Relining of the brake can be handled with a screwdriver and pliers.

The brake block in B. F. Goodrich Expander Tube brakes provides greater, more even contact between the lining and drum. It permits greater brake loading without overheating. Because there are no rivets, it uses all the lining. That means full, positive braking almost down to the metal backing.

Northwest Airlines is getting added savings by using B.F.Goodrich dimpled tires on their Stratocruisers. They switched to dimpled tires after they gave 20% more landings per tire in tests on DC-4 equipment. A BFG development, the dimple-like indentations in the tread provide better distribution of the tire load and reduce exposure to tread cutting. Retreading is simpler, carcass rejections are fewer. And a longer lasting cord construction cuts down separation.

B. F. Goodrich Expander Tube brakes and dimpled tires are developments of BFG research and engineering. Other B. F. Goodrich products for aviation include heated rubber, De-Icers, Avtrim, inflatable seals, Pressure Sealing Zippers, fuel cells, Plastilock adhesives, Rivnuts, accessories. *The B. F. Goodrich Company, Aeronautical Division, Akron, Ohio.*

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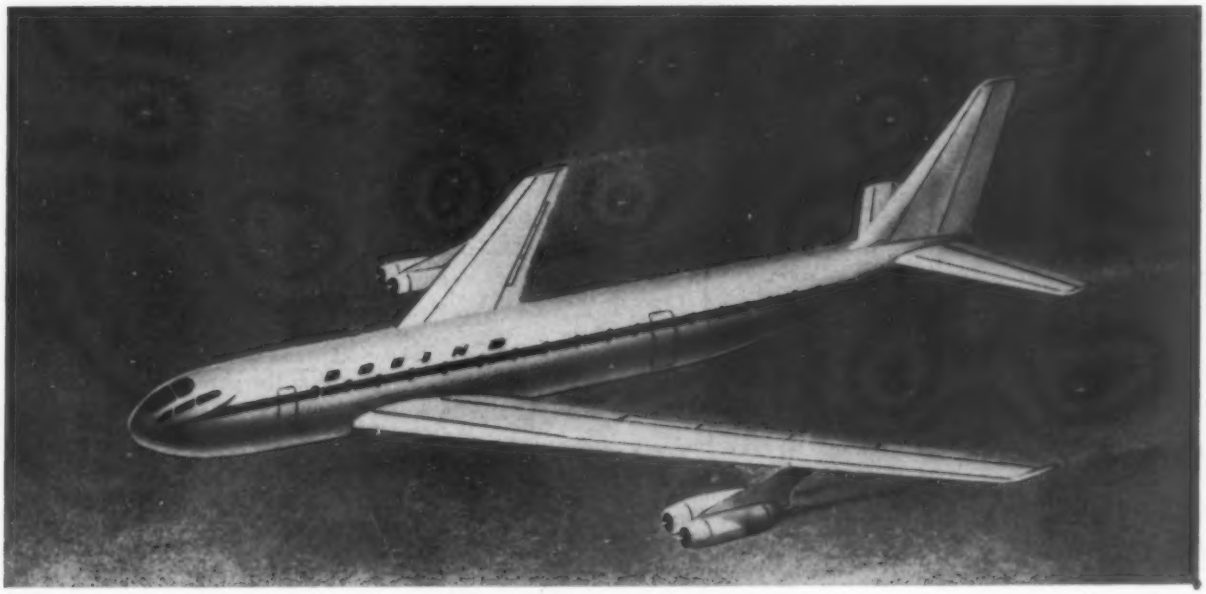


BOEING 707? Early sketch by Boeing of possible jet transport matches new specifications.

Boeing Buckles Down to Build U.S. a Jet

First U. S. jet transport will be the Boeing 707; military version to be an aerial tanker.

By William D. Perreault

BOEING Airplane Company's announcement, made by company president William M. Allen, that it is entering the jet transport sweepstakes, read: "The Boeing Company has for some time been engaged in a company-financed project which will enable it to demonstrate a prototype jet airplane of new design to the Armed Services and the commercial airlines in the summer of 1954."

The aircraft industry is fast awakening to the fact that this was probably the understatement of the year and possibly of the decade. In one of the boldest steps taken by any aircraft company, here or abroad, Boeing has set aside a sum estimated at $20 million for development of this country's first jet transport, a project which has challenged the economic and engineering ingenuity of this industry since the end of World War II.

The Boeing jet transport, tentatively designated the Boeing 707, will make its initial appearance in a rough mock-up before the end of this year. This will be followed by a detail mock-up in mid-1953, and the prototype aircraft is expected to roll out of the shed in mid-1954 for testing. Production planes can be expected by mid-1956 if all goes well and orders are forthcoming.

Officially Boeing's statements on the new design have been limited to the brief announcement above. Actually this is the trend of activity to date:

• **Boeing's Washington office** is making arrangements to obtain the critical materials required for the new project.

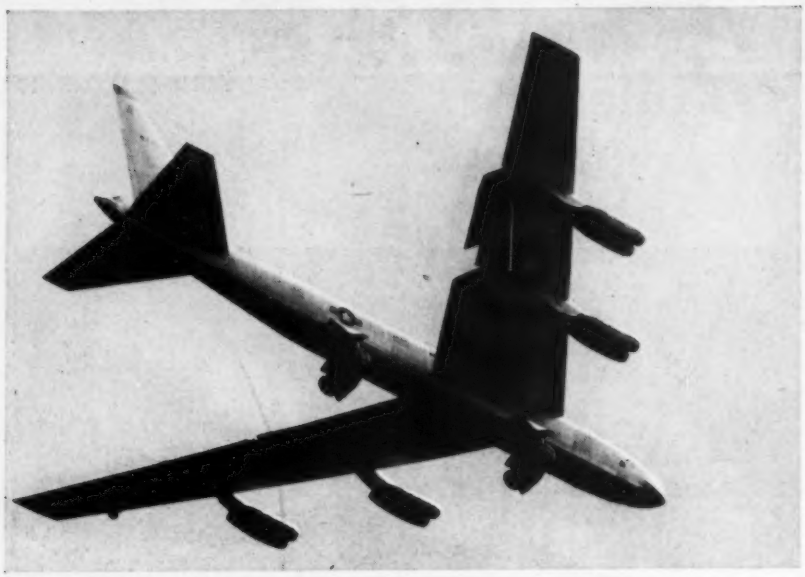
• **Boeing's purchasing department** is already "buying tin," lining up the immediate and long range materials.

• **A project group** headed by two of Boeing's top engineers has been set to work on the design.

• **The sales department** is taking a last long look at the military and civil requirements prior to freezing the prototype design.

This is one of the more interesting aspects of the Boeing action. The design is still fluid in many aspects. Boeing has more experience with large jet aircraft than any other company in the world. The Boeing B-47, which flew 18 months after work was started on the prototype design, is now being produced at a rate of one a day, and its sister ship, the B-52, recently completed its initial flight. From President Allen on down through the company ranks, everyone is convinced that Boeing is in the best possible position to meet the industry's need for this type aircraft.

The big deal is blending the proved designs established in Boeing's military experience with the divergent requirements being set up by U. S. domestic and international airlines, including



AERODYNAMIC CHARACTERISTICS of the 707 will be built around the wing design of the B-52, shown above.

some characteristics with which Boeing may not be in full agreement. As things now look unofficially, the Boeing 707 will probably include the following characteristics:

- **Passenger capacity:** 60-80.
- **Low-wing design** with 35° sweep and somewhat conventional landing gear.
- **Power by four** Pratt & Whitney J-57's rated at about 10,000 pounds thrust each and mounted in pairs on struts slung under the wings.
- **Cruising speed:** 530-550 miles per hour at 40,000 feet altitude.
- **Field requirements:** About 6,000 feet, but no greater than Douglas DC-6 or Lockheed Constellation.
- **Crew:** Three men, including flight engineer.
- **Cost:** Close to $4 million, including spares.

Contrary to the industry's first impression, the Boeing 707 will not be a modified B-47 or B-52. The B-47 is a comparative "hot rod" with a wing design too small for the operating requirements of the docile civil transport and too rugged structurally. The B-52 wing, around which the new transport's aerodynamic characteristics will be built, is much too large for this project.

Boeing's decision to use a new wing and a more conventional landing gear design explain why the flight date of mid-1954 is a goal which will tax the company's available effort. It also points up the company's determination to capture the U. S. market and make itself felt around the world.

The military market which Boeing appears most interested in is that of the aerial tanker. Boeing's KC-97 is the standard tanker used by the USAF today to refuel jet fighters. Boeing engineers are convinced that the advantages of a jet powered tanker, capable of operating with the fighters and bombers so that no rendezvous is required and the jets need not drop down to the tanker altitude nor slacken speed to accommodate the slow moving tanker, speak for themselves.

Of no small significance is the tentative time schedule for the Boeing jet transport. First production planes could be delivered in mid-1956. It was de Havilland Aircraft Company's inability to deliver Comet III's to Eastern Air Lines by 1957 that caused EAL president Eddie Rickenbacker to break off negotiations for "35 to 50" aircraft. Boeing's plane will apparently be available for this schedule.

This opportune timing is reflected in two new efforts by the British industry to make Comets available on an earlier schedule. Efforts are being made to put the Comet on a "super-priority" basis in the same manner as the Avro 698 delta wing bomber, a move which would assure materials and manpower for greater production.

The second move is the offer of British Overseas Airways Corp. chairman Sir Miles Thomas to make available two Comets to an American operator from its own production quota for use as "show cases" and in training activities.

Boeing's decision is particularly noteworthy because Boeing has been the most vocal in pushing for government funds for prototype development and testing, insisting that no commercial venture in this field was possible without it. Some observers feel the Boeing move has scuttled any chance of such government development support, but Boeing officials are still hopeful that some form of aid may materialize. If this move has any effect, they feel, it should prove to Congress that the U. S. industry is not idly waiting for aid.

Boeing, like most manufacturers and operators, has come to the realization that earlier goals with this type transport may have been unrealistic. There has been a tendency on the part of everyone to think in terms of the biggest, fastest plane that current know-how could build. Studies of these types proved them uneconomic and discouraged builders and buyers.

A trend which accentuates this "discovery" is the growing feeling that the plane should not be the sleek, high-performance transport which would probably dictate higher fares. Instead domestic operators are beginning to think in terms of a plane with six-abreast seating, with about 43-inch seat spacing, providing for 100-120 passengers at existing fares.

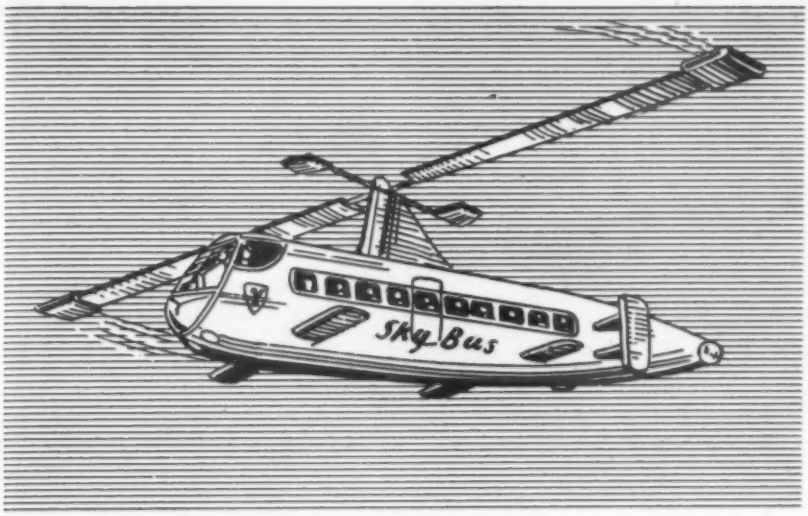
Full Schedules

The degree to which this philosophy has penetrated may well influence the final transport design which Boeing proposes. The next six to eight weeks will tell this story. No small factor in the matter will be that of frequency saturation on the high density routes where jet transports would see early service.

Flight frequencies are such today that no advantage accrues from additional flights. Planes of over 100-passenger capacity offer the chance for lower seat-mile costs without the disadvantages which once would have accrued from low traffic potential. This would also enable operators to reduce the number of operating units.

These are the changing forces which face Boeing's management in its attempt to make a final commitment and start shaping metal. No small factor is the matter of CAA certification of both the engines and airplane. There are certain regulations, particularly relative to aircraft performance, which would be disastrous if applied to jet transports.

The fact is that Boeing has looked over these obstacles very carefully, has appreciated that this is the opportunity to re-enter the commercial transport market with a very tangible lead over other contenders, and has decided to go ahead with the U. S.'s first jet transport.



Future bus? Hiller Helicopter Corp.'s conception of a forty-to-fifty-passenger ramjet transport helicopter is shown above.

North American Studies Three Transport Types

North American Aviation has assigned a special project group within the engineering section of its Los Angeles division to make a study covering three types of commercial aircraft. These are:

- **A jet transport;**
- **A feeder-line transport;**
- **An executive transport.**

Purpose of the three-fold study admittedly is to determine whether one or more of these commercial categories might offer attractive possibilities for North American, whose only previous departure from the military field, where it has been extraordinarily successful, was its unhappy postwar venture with the Navion four-place personal plane.

Prior to the war, North American put together the design of a 40-passenger, four-engine transport, but dropped it before it got out of the design stage because of the pressure of orders for its military craft.

The North American project still is strictly in the study stage, according to R. H. Rice, vice president and chief engineer, to whom the eight-man study group is reporting.

The group has been in contact with airlines to get their views, with engine manufacturers on power plant progress, and with various others who might be concerned in any development of new aircraft in the three classifications. The study, however, will require more research before the group can be expected to make recommendations to the company's management.

Rice indicated that at this time the engineering department has no idea what conclusions the study may produce.

No design configurations have been reached in the study group, although there have been some unconfirmed reports of an 80-passenger jet design being in the works. The study in progress includes markets and all economic phases as well as design and manufacturing considerations for the three types of planes.

Industry Capital Strained, NCO Finds

An operating loss of only 4% on military orders could wipe out the working capital of 12 representative aircraft manufacturers, the National Credit Office reported after a survey of the aircraft industry. NCO called for a more efficient government aircraft procurement policy to protect the strained capital investment of the industry.

The 12 manufacturers, with a combined backlog of $9,300,000,000, had a 77% increase in sales for the first half of 1952, but gained only 30% in earnings. In another survey of 14 companies, NCO reported a combined indebtedness of two and one half times their net worth. Working capital fell off $40,000,000 in 1951 and in the last seven years it has been reduced by $200,000,000. In 1951, the report said, earnings of the 14 companies dropped 36% despite a sales increase of 45%.

NCO attributed the low earnings to the fact that the priority systems did not always function as they were supposed to and also to delivery schedules that were altered to accommodate design changes. This, the bureau feels, can be rectified by more efficient programming.

Machinists End Strikes, Agree to Mediation

A request by President Truman that the strikes by about 40,000 AFL-Machinists against Lockheed-Burbank and Douglas-El Segundo be ended in the interest of national defense has been heeded by union leaders. Negotiations in the two wage disputes were transferred to Washington under the auspices of the Federal Mediation and Conciliation Service.

The IAM had been insisting that a Presidential fact-finding board intervene, but did not succeed in obtaining such action. The President's telegram requesting resumption of production, indicated, however, that a member of the White House staff would sit in on mediation sessions "if needed." This is a rather unusual step.

Meanwhile, the IAM retained bargaining rights at Lockheed's Marietta, Ga., B-47 plant. In an NLRB-ordered election, production and maintenance workers, office and technical workers and electricians all chose the Machinists as the bargaining aganet over a new CIO union formed by CIO vice president Allan Haywood. The Machinists won over United Lockheed Aircraft Workers Local 1784 in all three ballots.

On the Cover: Allen

WILLIAM M. ALLEN, president of Boeing Airplane Company, has served the company for the past 27 years. Allen's recent announcement that Boeing is building a jet transport, which will be ready to fly in mid-1954, was another bold step such as has kept Boeing prominent in military and civil aviation through the years (see story, page 15).

Born in 1900, Allen graduated from the University of Montana in 1922 and received his Bachelor of Law degree from Harvard Law School in 1925.

Allen took over the presidency of Boeing in 1945 following the death of Philip G. Johnson. Prior to this he had served 14 years as a director of the company and even earlier as a lawyer had laid the ground work for the many organizational changes involved in the formation of the present company from Boeing Air Transport, Inc.

Taking over the presidency at this time, Allen accomplished the difficult role of readjusting the company's production to postwar schedules and then expanding them again to meet the USAF's requirements for Boeing B-47 bombers, B-50 Superfortress, C-97 Strato-freighters, and now the Boeing B-52, newest member of the Boeing family.

ONLY SIDE-BY-SIDE jet trainer designed from the start as such, the S-14 may have a big future.

New Fokkers May Hit U. S. Trainer Market

S-14 jet and two piston-engine models to be shown to likely American buyers by Fairchild.

By ANTHONY VANDYK

TWO Dutch trainers arrived in this country early this month—the S-11 and S-12 built by Fokker Aircraft Company; also slated to come to the United States soon is Fokker's jet trainer—the S-14. Behind this news are a series of projects destined to renew the links between the U. S. and Dutch aircraft industries and which may well result in foreign-designed aircraft playing a major part in the U. S. Air Force's training program.

An almost-forgotten fact is that the S-1, Fokker's first side-by-side trainer, was developed for the U. S. Army Air Corps in 1920. Also, comparatively few people remember that Fokker transport aircraft were built in the United States between the wars. The first non-stop flight across the American continent, in fact, was made in 1921 by a Fokker plane—the F-4.

Fairchild the Sponsor

Sponsoring the Fokker Aircraft Company's products in the U. S. is the Fairchild Engine and Airplane Company, which believes that the S-11 and S-12 primary trainers and the S-14 jet trainer fill important gaps in the USAF's program. The Hagerstown firm sees the S-11 and S-12 (identical aircraft except that the latter has a tricycle undercarriage) as ideal replacements for the miscellaneous equipment (mainly North American T-6's and Piper Cubs) currently operated by civil contract schools.

A requirement of 500 replacement aircraft is envisaged and on the basis of demonstrations of the Dutch aircraft to school operators Fairchild will decide whether the market will support U. S. production of the S-12 (the model which appears most likely to attract U. S. customers) or whether orders could be handled from Fokker Aircraft's Amsterdam production.

License production of the trainer by Fairchild would not be a difficult proposition in the opinion of company engineers, who point to the fact that the Macchi concern in Italy took only nine to 10 months to get S-11 production rolling (the S-11 is a standard trainer in the air forces of Italy, Israel, and the Netherlands). The model is of simple but rugged construction—fabric-covered, steel-tube fuselage and an all-metal cantilever wing—with a readily available American powerplant, the 190 hp Lycoming O-435-A.

Another factor that should speed production is the experience gained by Fairchild during World War II when the Hagerstown company built 5,000 PT-19's, a model somewhat similar to the S-11.

A rather more complicated produc-

S-12 is tricycle-undercarriage version of the S-11; U. S. civil contract schools will eye it with interest.

tion program would be involved if Fairchild decided to build the S-14, a side-by-side jet aircraft designed from the start as a trainer. The prototype of this plane, which has been flying for a year and a half, will probably be brought to the United States before the end of the year and demonstrated at USAF training bases. If the Air Force decides to make jet aircraft flying a basic part of every pilot's training irrespective of whether he is destined to fly fighters, bombers, or transports, the proven S-14 would stand an execllent chance of selection as it stands alone in its field, and already has received very favorable reports from American and British evaluation teams.

Development of the S-14 reflects Fokker's thinking that there are so many fundamental differences between jet and piston-engine aircraft that jet training should be included in basic training. Some of the differences are:

• **On take-off** the piston-engine plane tends to swing; the jet pilot, on the other hand, has to watch for "surge" rather than swing.

• **On landing** the absence of the effects of slipstream on the flying characteristics is marked; this is one of the essential differences between the two types.

• **In a propeller-driven** plane the optimum speed for best rate of climb is well below the top speed, whereas a jet's optimum climbing speed is relatively much nearer maximum speed.

• **With a piston engine,** fuel consumption increases with height, with a jet it decreases; consumption is of secondary importance for the former, vital for the latter.

• **Propeller drag** when throttling back has a very marked effect on the approach, but on a jet this influence is absent and the use of effective air brakes may be needed as an extra means of control.

• **The slower response** of the jet engine to correct inaccurate landing manoeuvres.

• **The essential difference** in the entire engine control—in a piston-engine plane the pilot must watch manifold pressure, mixture control, propeller pitch, etc., whereas in a jet, pipe temperature, oil pressure, "surging," response and relighting in flight are essentials.

Pilots have hitherto learned jet flying in jet fighters, or in trainers converted from fighters incorporating most of the "hot" handling qualities of combat aircraft. The S-14 is a more gentle plane with a lower speed and wing loading than converted fighters. Moreover, its range of 1½ to two hours is longer than that of some current jet fighters.

ADOPTED by the air forces of Israel, Italy, and the Netherlands, the S-11 is shown above.

But perhaps the most important feature of the aircraft (and of the S-11/S-12 too) is the side-by-side seating lay-out, which is being adopted by increasing numbers of air forces. The advantage of this lay-out are threefold:

• **Instruction** can be given in a more efficient manner;

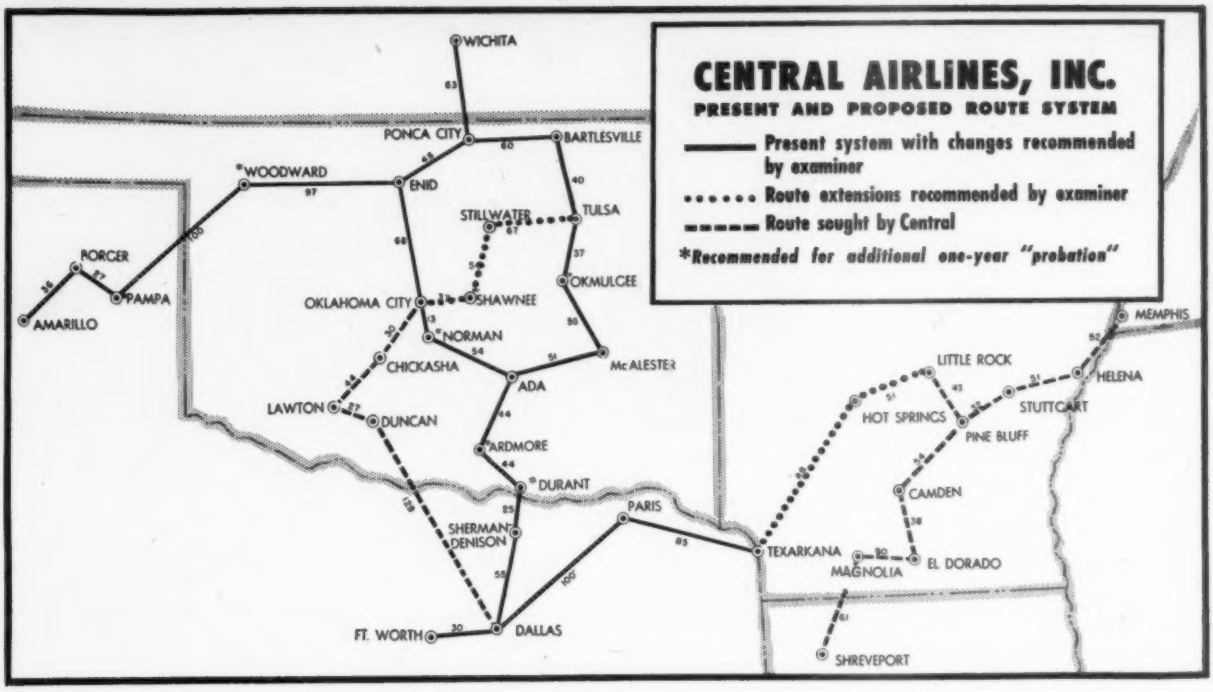
• **Both the pupil** and instructor have the same good vision for take-off and landing;

• **Both use the same** set of instruments, as only one instrument panel is required.

S–14 Specifications and Performance

Dimensions	
Span	39 ft. 5 in.
Length	43 ft. 8 in.
Height	15 ft. 4 in.
Wing area	342 sq. ft.
Wing loading	32.9 lb./sq. ft.
Power loading	3.13 lb./lb.
Engine	
Static thrust at combat rating at 14,700 rpm	Rolls Royce Derwent IX 3,600 lbs.
Weights	
Empty	8,454 lbs.
Maximum take-off	12,550 lbs.*
Maximum landing	12,550 lbs.
Speed	
Max. speed at 25,000 feet	440 mph
Max. cruising at 25,000 feet	400 mph
Rate of climb at sea level	3,500 ft./min.
Climb to	
10,000 feet	3.3 min.
20,000 feet	7.8 min.
25,000 feet	10.9 min.
30,000 feet	15.0 min.
Service ceiling	40,000 ft.
Take-off distance (over 50-ft. obstacle)	3,000 ft.
Endurance at 25,000 feet	
with 370 gallons	1.2-1.8 hrs.
with 400 gallons	2.3 hrs.
with 500 gallons	2.9 hrs.

** with 540 gallons of fuel.*



Central Airlines: Head Above Water at Last?

CAB decisions may soon reward local carrier's long fight for existence with workable route structure.

By WILLIAM V. HENZEY

THE SUCCESS of one of aviation's greatest up-hill struggles hinges on the decision of five Civil Aeronautics Board members currently weighing Central Airlines' bid for certificate renewal and route modification.

The sage of Central—its trials, successes, and future, and the boundless enthusiasm and energy of its president, Keith Kahle—constitutes one of the most impressive success stories in modern aviation history. From Kahle to the lowest Central employe (and there is no great distance between the two), ample reward for their efforts will be a vote of confidence from the full Civil Aeronautics Board.

Kahle got his start in aviation back in the middle thirties, about ten years before Central came into being. But the fullfilment of his ambitions and the entry of Central into the active aviation picture were simultaneous achievements in 1949.

Central, under a different ownership, was awarded a local service certificate by CAB in 1946. Various factors intervened to block implementation of the certificate until Kahle arrived on the scene in 1949. He had the financial support of two Ft. Worth oilmen, F. Kirk Johnson and Deane Gill, and offered to buy out the stock of the then-current owners.

While this deal was in the making, Central was faced with a CAB ultimatum to start service "or else." The owners agreed to sell and Kahle, Johnson, and Gill applied to CAB for approval of the acquisition, stating service would be started within two months after Board approval.

Keith Kahle

The deal jelled and, true to their word, Kahle and his two supporters had Central in the air by September 15, 1949. But this was the beginning of problems. The only way the feat could be accomplished, what with limited airport facilities and other factors, was to start service with single-engine equipment.

Getting Under Way

With $200,000 capitalization, they purchased eleven Beechcraft Bonanzas capable of carring four passengers and got the route under way. The company only had eight months left to go under its temporary certificate and the routes over which operations started had shorter-than-average distances between stops, both of which factors, coupled with the use of small equipment, militated against economic success.

Immediately plans were put into motion for the purchase of DC-3 aircraft. A petition was filed with CAB for extension of the certificate and the experience being gained daily over the routes was applied to proposals for route

modifications which would keep Central a local service airline, in accord with CAB's desires, but would permit more efficient operations to relieve the burden on the Federal Treasury.

The certificate renewal petition acted to extend the expiration date of the certificate, under Federal law, until a decision had been reached by CAB. This provided time for the DC-3's to be put into service starting on May 15, 1951.

But the use of larger equipment was no solution in itself to the route problem and Central was faced with the task of compiling an efficient record impressive enough to warrant CAB's granting it a longer term certificate.

By some yardsticks, Central's record may be termed that of a high-cost operator. This results from (1) low route mileage over which to spread its indirect costs, and (2) the short distances between stations. But at oral argument before CAB late last month, the carrier presented data bearing out the efficiency of its operation since utilization of DC-3 aircraft.

Cost Comparison

For example, in a comparison of first-year DC-3 operations of Central and other local service lines, Central had the greatest frequency of landings per 1,000 flight miles—19.7. It ranked fourth lowest, however, in cost per station operated with $16,431; the average of the twelve carriers was $21,216.

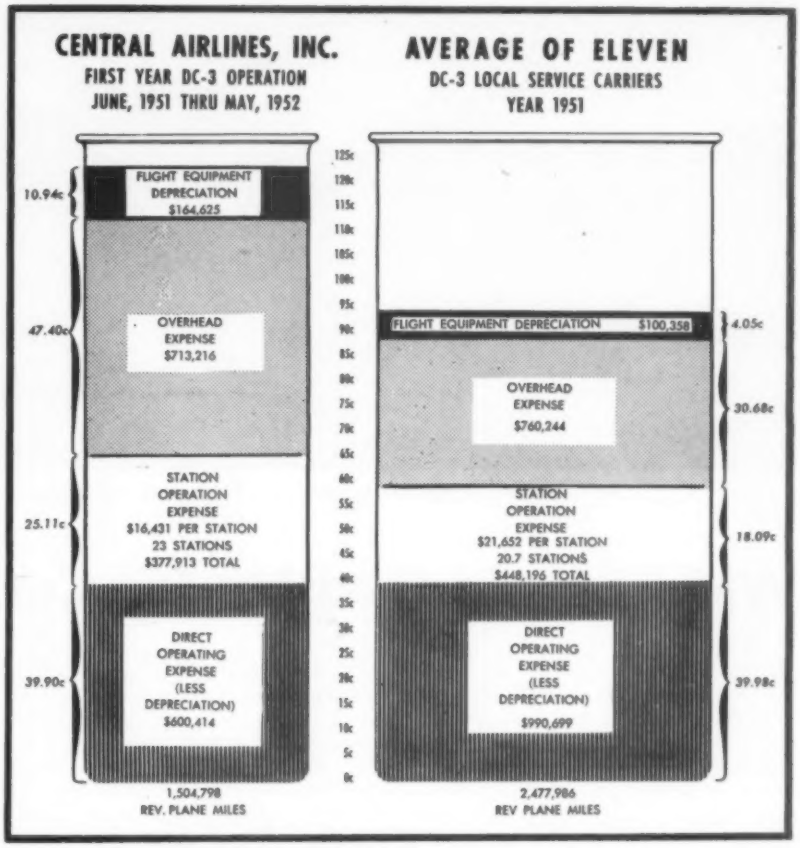
These figures gain even more significance when it is noted that during the first year in which Central operated DC-3's, the general cost level was 10% higher than for the average of the other carriers.

During that first year with DC-3 service, the local line served more revenue passengers than did nine other local lines, but study shows that its passengers averaged shorter trips than did those of any other carriers. This meant, of course, the lowest average revenue per passenger of any of the lines.

The carrier has concentrated on being strictly a local service airline. Its efforts along these lines led one trunkline official, T. M. Miller, vice-president-traffic of Chicago & Southern, to call Central "The Golden Rule Airline" at a recent CAB case.

The company's policy also has gained for it perhaps the most enthusiastic public support ever offered an airline by the area it serves. When hearings opened last December in Oklahoma City on the renewal issue, 378 civic witnesses appeared to testify on behalf of the airline's bid.

Perhaps equally as inspiring to Kahle and his associates is the current drive going on in Okmulgee, Okla., which a CAB examiner has recommended be placed on a one-year probation with suspension of Central's service facing it if sufficient traffic is not produced within the period.



COST COMPARISONS in cents per revenue plane-mile

In response, merchants, city officials, students, housewives, and professional people of all types are conducting door-to-door campaigns, and pushing radio commercials and newspaper messages to stimulate the air travel which will preserve Central's current right to operate there.

At hearings before CAB there was voluminous testimony on the line's contribution to defense and the active part it is playing in de-centralizing major industrial plants by making airline service available to less thickly populated areas.

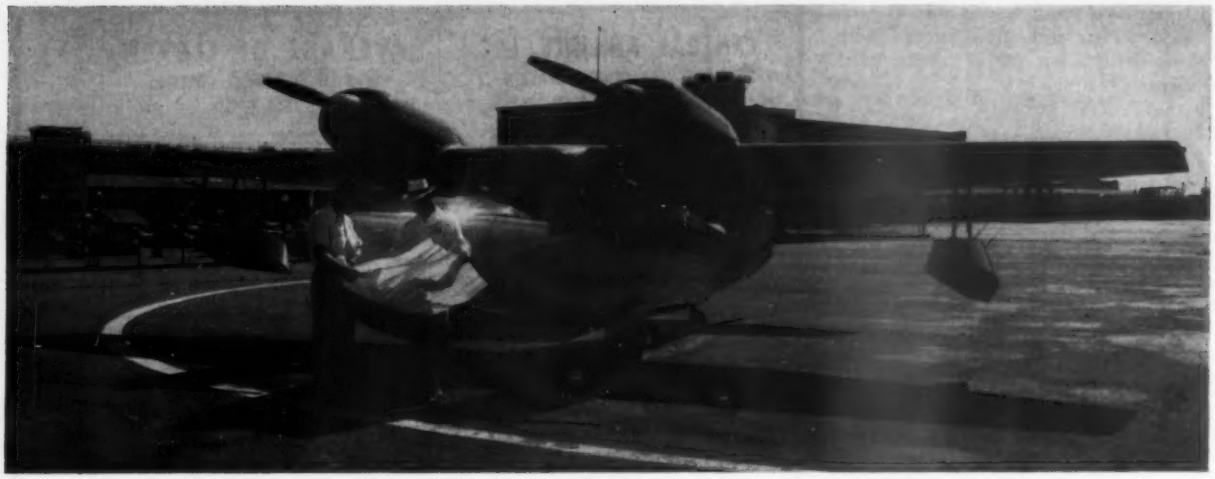
Central's present routes are bounded by Amarillo on the west, Wichita on the north, Ft. Worth/Dallas on the south, and Texarkana on the east. It has applied to CAB for eastward extension of the Texarkana segment to Hot Springs, Little Rock, and Memphis, with service also planned in the area to Helena, Stuttgart, Pine Bluff, Camden, Magnolia, El Dorado, and Shreveport.

Other route adjustments include a connecting link between Oklahoma City and Tulsa via Shawnee and Stillwater, and service between Dallas and Oklahoma City via Checkasha, Duncan, and Lawton-Ft. Sill.

With these adjustments and the financial stimulant which a renewal of five years or more will mean in terms of attractiveness to investors, Central feels it can get a good start on the road to self-sufficiency. Currently, Kahle plans to continue using DC-3's until suitable helicopters become available.

The company's fight for survival and a stronger local route pattern recently received a strong assist when a CAB examiner recommended renewal for five years and various route adjustments. Support also came from CAB's own Air Operations Bureau, the economic watchdog of the industry. Encouraged by these good omens, Kahle and those who have worked with him wait for the CAB's action with confidence.

With a larger mileage base over which to spread costs (a factor in Bonanza's recent extension from Phoenix to Los Angeles), needed route adjustments, and the potential availability of more economical aircraft, Central hopes soon to make its contribution to sustaining CAB's hopes of the middle Forties that self-sufficient service can be provided over strictly local routes.



REVAMPED WIDGEONS are already in service with two corporations. Above, the new look.

Widgeons Souped Up for Corporate Owners

A 500-pound increase in the gross weight of the Grumman Widgeon and a 20 mile per hour increase in normal cruising speed is provided by an extensive modification of the twin-engine amphibian engineered by Lockheed Aircraft Service and recently approved by CAA.

The first two planes incorporating the modification have already flown and have been delivered to their corporate owners, Superior Oil Company and Tennessee Gas Transmission Company.

The modification, kits for which are now being manufactured by LAS for application to additional planes in the 250-odd fleet of Widgeons which were built during and immediately after the war, consists primarily of substituting Lycoming 260 horsepower engines for the 200 horsepower Ranger engines previously used. Also new are the Hartzell controllable pitch propellers, which contain an emergency feathering mechanism to improve single-engine performance.

Some other features of the Lockheed-engineered modification:

• **A low-drag cowling** with all air pick-up inside the nose ring.

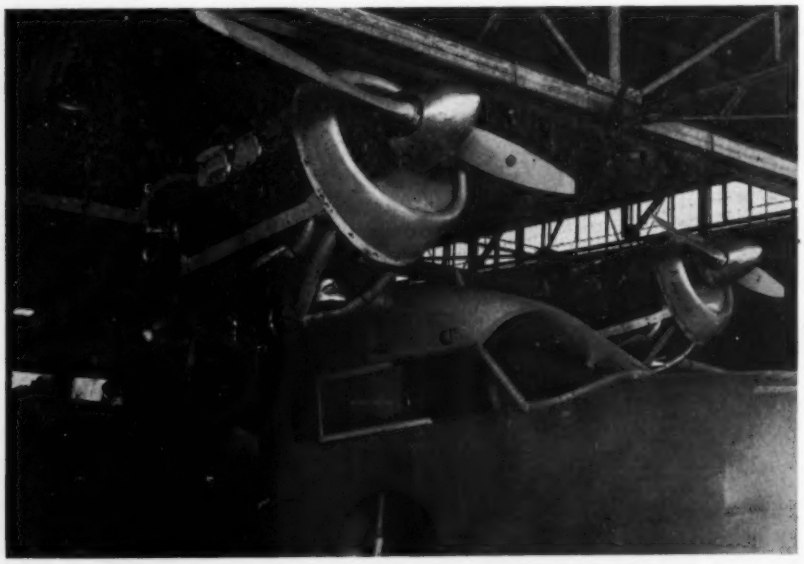
• **Addition of a fifth** engine mount attach fitting at the lower spar cap.

• **Center of gravity** limits identical to those of the original Ranger-powered plane.

• **Elimination** of the oil tank in the nacelle by use of the wet-sump engine construction.

• **Water landing** and take-off weight has not been increased, but probably could be by adding hull structure.

Modification of the Grumman Widgeon, with Grumman supplying the structural engineering data for the wing and center section reinforcements, was initiated during the fall of 1951 by Superior Oil Co., which commissioned Lockheed to design the installation.

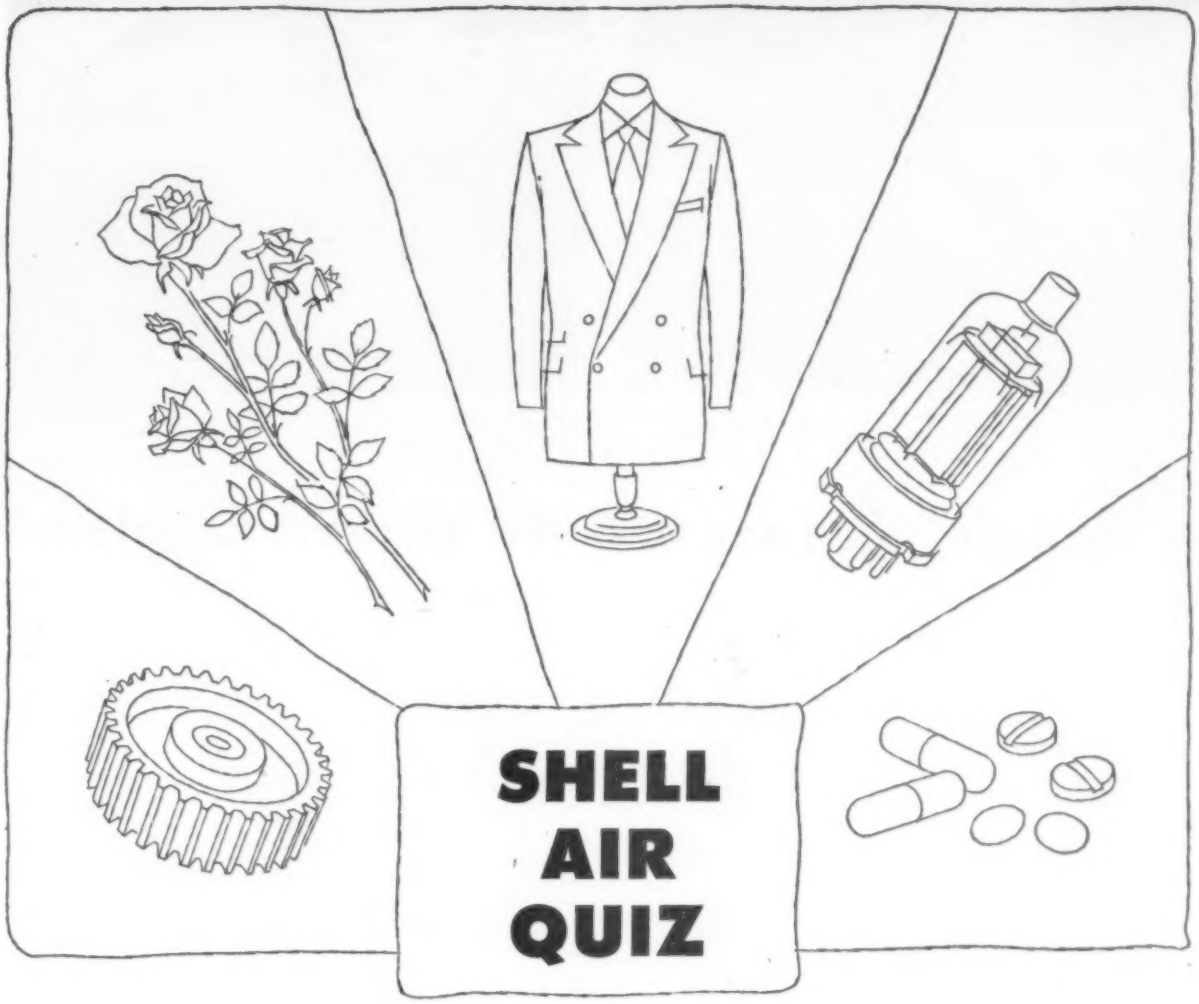


CLOSE-UP of new engine installation, showing 260 hp Lycoming.

Widgeon Performance Data*

	Lycoming 260 hp	Ranger 200 hp
Maximum speed	187 mph	164 mph
Cruising speed (75% power)	171 mph	150 mph
Cruising speed (62½% power)	157 mph	138 mph
Cruising speed** (62½% power)	164 mph	146 mph
Rate of climb	1750 ft/min.	1000 ft/min.
Climb to 10,000 ft.	8 minutes	15 minutes
Service ceiling (est.)	18,000 ft.	15,500 ft.
Take-off run	640 ft.	895 ft.
Glassy water T.O.	16 seconds	25 seconds
Landing speed	63 mph	58 mph
Gross weight	5,000 lbs. land 4,700 lbs. water	4500 lbs.

* *Sea level.* ** *6,000 feet.*



SHELL AIR QUIZ

Question:

From these five leading types of air freight shipment, can you pick the top tonnage classification?
( ) Electronic Parts ( ) Machine Parts
( ) Flowers ( ) Garments ( ) Biologicals

Answer:

In order of tonnage, the actual ranking is: (1) Garments (2) Machine Parts (3) Electronic Parts (4) Flowers (5) Biologicals

Question:

Which Aviation Fuel in the U. S. A. today flies the most air freight?
. . . the most passengers?
. . . the most air mail?

Answer:

SHELL AVIATION FUEL

SHELL OIL COMPANY

50 WEST 50TH STREET, NEW YORK 20, N. Y.
100 BUSH STREET, SAN FRANCISCO 6, CALIFORNIA

TURBOMECA MARBORE jet engine installed under a Flying Tigers C-46 gets a last-minute check by chief engineer Paul Miller. Note clamshell doors provided to close off inlet and cut drag when engine is not operating.

Is Turbojet Answer to C-46 Weight Problem?

Flying Tigers have slung test engine under belly; optimistic about results of experiment.

By Fred S. Hunter

THE FLYING TIGER LINE is running tests on an experimental installation of a Turbomeca Marbore II turbojet engine in a Curtiss C-46 to determine whether it may be a feasible method of improving the craft's performance.

Paul W. Miller, chief engineer for the Tigers, said the air freight carrier felt very optimistic over the prospects. It is so optimistic it has suspended all work on a water injection project it had inaugurated on P & W's R-2800-75 engine with the same objective in mind in order to devote all its attention to the more promising Turbomeca program.

The initial tests have been devoted mainly to solving the cooling problem. The nacelle, which is attached to the belly of the airplane at the center of gravity, is of Tiger design. With cooling out of the way, load tests are ready to be started next.

The Flying Tigers' evaluation of the small turbojet power plant, which is rated at 880 pounds thrust for take-off at sea level, is being conducted in conjunction with the Continental Engine & Engineering Corp., a Continental Motors Corp. subsidiary, which is furnishing the engine for the C-46 experiment.

The Marbore II is one of a family of nine gas turbines for which Continental acquired U.S. manufacturing rights from Societe Turbomeca of Bordes, France. The tests being conducted by the Flying Tigers at the company's base at Lockheed Air Terminal in Burbank, Calif., represent the first commercial experiments with the engine in this country.

The pod which the Tigers' engineering staff designed to hang on the front and center spars of the C-46 wing is full monocoque construction and contains no stringers. Aft section is stainless steel. Overall measurements are 82 inches from tip to tip and 25 inches in diameter.

An eyelid door, opening and shutting hydraulically, is employed to prevent wind-milling drag which otherwise would be considerable with the centrifugal jet despite its relatively small diameter. Chief Engineer Miller and Capt. Herb Wall, Burbank division chief pilot who has been flying the C-46 in the tests, said the Tiger-designed pod sets up roughly the same amount of drag as the ship's landing lights when they are lowered.

Total: 461 Pounds

The power pod designed by the carrier adds 162 pounds to the engine's weight of 299 pounds, making a total addition of 461 pounds. The engine weight includes an electric starter and an air starting manifold. Power pod weight includes the fairing, oil, and instruments. Fuel comes from the main fuel system and involves no additional weight.

The Marbore II has a specific fuel consumption of 1.18 at takeoff and 1.15 at rated power. The engine burns 935 pounds per hour at sea level; about half that at 18,000 feet.

In the Tiger scheme of things, the turbojet in operation on the line would be cut in for about five minutes in covering the take-off segments. After reaching normal climb it would be shut off. Miller and Wall said that in operational use the Flying Tigers would expect to use the turbojet assist for all high-gross take-offs.

Although the Flying Tigers have seven Douglas DC-6A's on order, the air freight carrier is highly interested in prolonging the life and usefulness of the C-46 for short- and medium-haul operations.

A twin-engine air freighter is essential to round out an air cargo service such as that operated by The Flying Tigers, and a little improvement in take-off and single-engine rate of climb characteristics would put the C-46 far out in front in this category. As a matter of fact, there is no suitable replacement for the craft in sight, with the possible exception of a cargo version of the Convair-Liner 340, which would require a substantially greater outlay of capital expenditure.

Immediate objective of the Flying Tiger tests is to protect the current gross weight of the C-46, which for freight operations is 48,000 pounds. Ultimately, a conceivable follow-up of eventual CAA certification of the installation would be an application for an upward adjustment in the weights. The additional power also could contribute to a more favorable temperature accountability formula.

The Flying Tigers have put approximately 50 hours of time on the C-46 in flight tests of the installation of the jet power package. Most of this has been with the engine off. About 25 hours of combined ground and air time have been put on the engine.

The carrier estimates it may take another six months to complete its experiments. No CAA certification tests are included in the current project, since type certification of the engine is yet to be accomplished. The engine being used by the Tigers was sent over from France.

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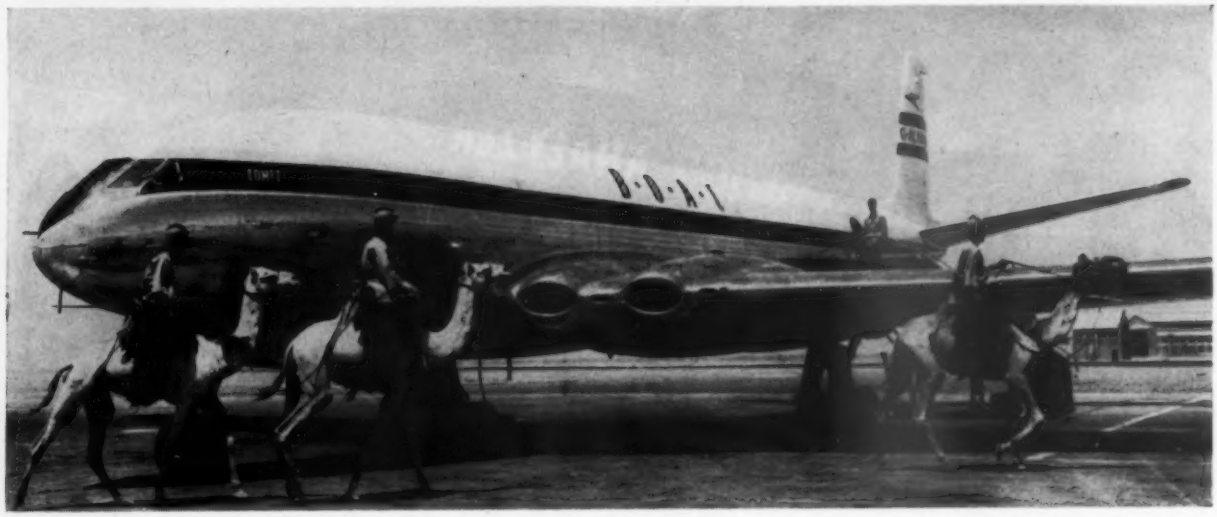


FAR AWAY PLACES. Speed of the Comet reduces fatigue in long hauls, publisher finds.

Far East by Comet: Smooth, Quiet, Exciting

Parrish rides a London-Singapore training flight and sums up one passenger's impression: "Top notch."

By WAYNE W. PARRISH

SINGAPORE, Sept. 28—I've just had a long, deep, sweet 7,600-mile look at the commercial jet age of tomorrow.

Tomorrow, that is, for the United States.

For the British, it's here today. It's no longer a dream, it's no longer a preview of things to come. It's here.

I'm writing this in an air-conditioned hotel room in hot, sultry Singapore, that vital British outpost of the Far East, just a few hours after completing a flight from London on a Comet I of British Overseas Airways Corp. It was a training and development flight prior to inaugurating twice-weekly service in a few weeks from now.

If I have had any doubts about commercial jet, those doubts have been dispelled thoroughly. In some hundreds of thousands of miles of flying throughout the U.S. and the world, this Comet trip has been tops by a considerable margin.

To fly 7,600 miles at altitudes of between 35,000 and 40,000 feet and at speeds varying from 450 to 490 miles per hour, is a genuine thrill. To cover the distance from London to Singapore in less than 20 flying hours is also a thrill. In addition it is a preview of what world air travel is going to be in the years to come when jet is standard for all long-haul routes.

Jet, as military pilots know so well, is a brand new experience. It takes you into a new world, it provides new sensations, it is not just a routine advance in the state of the science.

The absence of vibration is astonishing. I have long wondered whether it was noise or vibration that contributed most to fatigue on long air trips. I'm now convinced that the trouble spot is vibration. Flying the Comet is both easy and tireless.

Another difference with jet is a new sensation of effortless motion. On piston-engined airplanes, you push forward, windmill fashion, into the air. The passenger tends to push forward along with the engines—there is always the feeling of constant drive. With every change of engine pitch you feel it directly. You are part of the power. But not with jet. I had the feeling that our Comet was being towed, that the power plants were not in our plane, that we were being carried through the air rather than forcing our way through it. This is another relaxing feature—the detachment of the passenger from the power plant.

Stars Below You

Then, too, jet takes you high into the skies. At seven miles above the earth, the sky is a deep blue. At night the stars even seem to extend below you. Clouds have much more fantastic shapes than they have from lower altitudes, indeed one group of cumulus which I saw from above looked for all the world like a garden of odd-shaped plants. The perspective is entirely different. There is a feeling of greater freedom in the vast expanse all about you. When there are no clouds you can see great distances, such as seeing the Himalayas 250 miles away. Towns are but specks. You begin to appreciate the height when you start descending for the next stop 200 to 225 miles away.

I had heard a lot about the lower noise level in the Comet cabin. It isn't as good as all that. It isn't silent. But it is an improvement over most piston-engined airplanes. Most important, however, it is a steady sort of hum, completely without irritation. In the front of the cabin, conversation is very easy and effortless. The noise increases toward the rear, but it is a rushing noise as though you were standing in a soundproofed room under a huge waterfall. There is no whistle—just a rush of air outside the plane.

Both BOAC and de Havilland say they have never claimed the Comet to be noiseless inside the cabin, but others have given that impression, unfortunately. The fact is that the noise level is perfectly satisfactory, it is a decided improvement over piston-engined noise.

All in all, this writer can but conclude that jet transport is wonderful, it has everything claimed for it, and can't help but be a big hit with the public. On the technical side, for performance, operating costs and all the rest, I leave

this for the technical writers to fuss about. As a passenger my reaction was top-notch.

When I left Washington late in August to cover the SBAC aircraft show at Farnborough, near London, and to cover the annual assembly of the International Air Transport Association at Geneva, Switzerland, I hadn't the vaguest idea of flying to Singapore and of making a round-the-world circuit. But Sir Miles Thomas, BOAC chairman, gave the okey for me to fly with the training flight and I didn't take as much as one second to say yes.

I'm the only American to have flown so far from London on a Comet flight. I had only two other companions out of the 27 on board who were not crew members or technicians. One was the wife of a British journalist, the other was Peter Wood, BOAC sales manager for Hong Kong, whom I had met before. In charge of the flight was Capt. T. B. Stoney, a BOAC veteran. Getting checked out on this route were Captains A. M. Foster, A. M. Alabaster and W. D. Wellwood. There were three complete crews on board, plus some technicians who included R. W. Burn-Callander of the de Havilland Engine Co. Ltd.

19 Hours vs. 34 Hours

We were four days on the trip, all told, with overnight stops at Beirut and Calcutta, and arrived at Singapore on schedule. Due to training of crews, it was impossible to stage a regular flight. But Singapore shortly will have two flights a week from London, each taking a slightly different route, and each making the trip in 27 hours of which 19 will be in flight. The Constellation takes 34 hours of flying time for the same route plus ground time that includes an overnight stop. For some time the Comet has been flying once weekly as far east as Colombo, Ceylon, and this service will continue, giving BOAC three weekly services to the east.

It was with great anticipation that I went to London Airport one morning to board the Comet. Check-in was routine. So was boarding the Comet. The interior is plush but looked like most airplane interiors. The first mark of distinction came when the engines were started. There was a muffled explosive sound as each burner caught, and then a revving up that sounded more like an electric dynamo. But in no time at all the plane began moving out to the runway. The noise which somebody described as sounding like a terrific wind rushing through a tunnel—which, in fact is what it is—remained fairly constant. And with no delay whatever, the Comet slid down the runway and into the air with greatest of ease. It was seemingly without effort.

Wayne Parrish boards a Comet for a 7,600-mile flight to Singapore.

Then the stewardess came around and announced very casually that we would ascend to 37,000 feet and that we would land in Rome, Italy, in two hours and twenty minutes. It all seemed so simple, and yet this is a new era of flying. The first thing I noticed was the absence of vibration. The second was that I was climbing high in the sky and hadn't helped push those engines off the ground. Outside there were no propellers to be seen whirling around. It was like being towed in a glider.

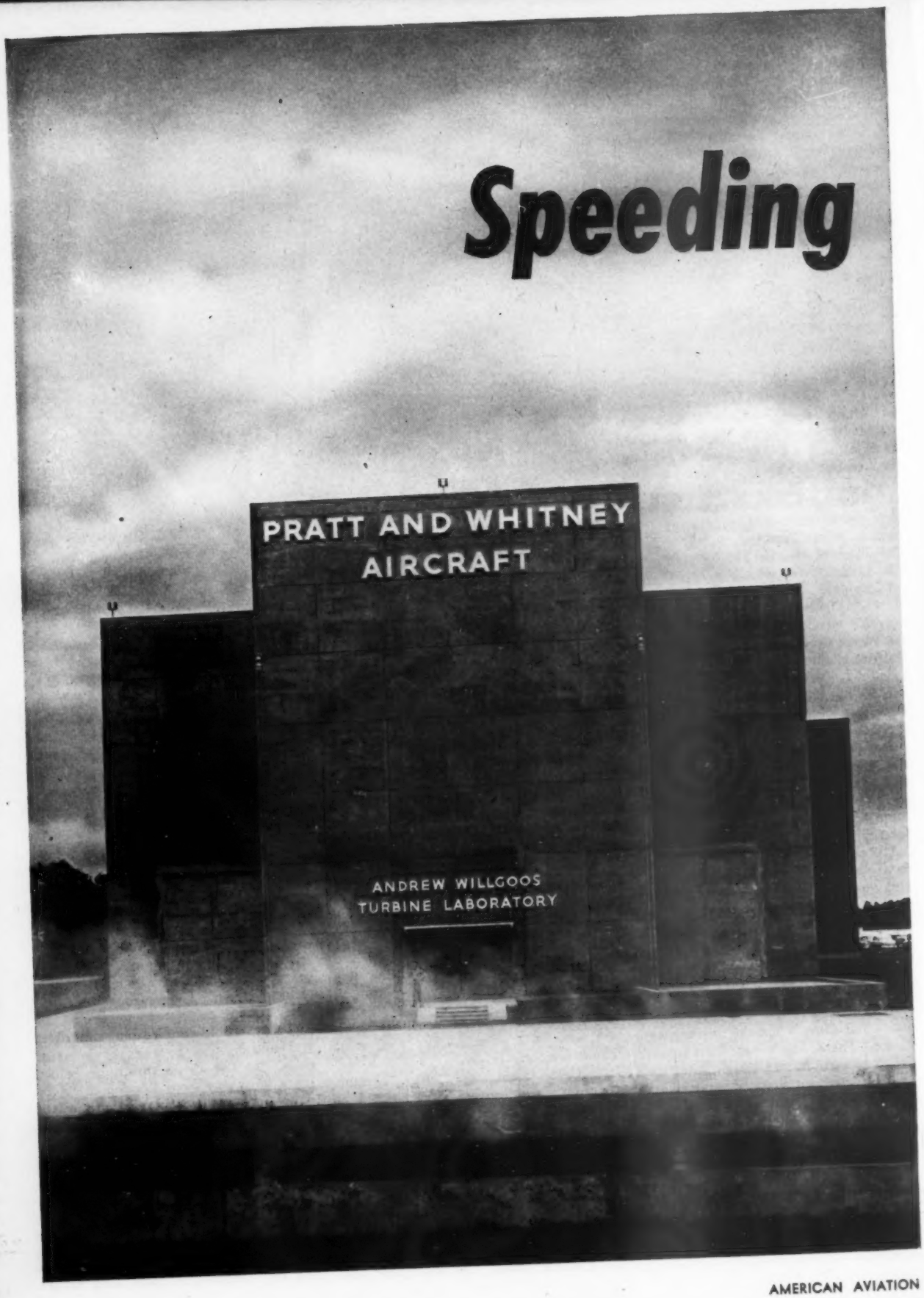
There were a few moments of light turbulence as we moved above the lower cloud level, just as in other planes. But as we got higher the trip became very smooth and there was no sensation of speed. We seemed to be in suspension, while the earth moved by slowly. Soon we were in a cloudless sky with solid cloud layer far below.

Then came the Alps peering through cloud breaks. They seemed so far below, as indeed they were. You can see virtually the entire range at a glimpse from Comet altitude. A week earlier I had been driving through the Alps and impressed by their ruggedness and height. I had even driven up over a snow-covered mountain pass. Now, looking at them far below, I wasn't much impressed. I was more interested in reaching Rome. The Alps came and went mighty fast. And so did Rome. And after an hour's stop at Rome, we were in Beirut, Lebanon, at the eastern end of the Mediterranean, in another three hours and twenty minutes. The Comet is not for the casual sightseer—it's for the guy who wants to go a long way fast.

The Rome-Beirut hop was, as it turned out, the longest on the trip. Others were about two hours and a half. One was only one hour and forty minutes. They all totaled just under twenty hours.

And this brings up the complaint about the Comet. You cover so much ground so fast that you're constantly coming down. To someone who had never flown to Singapore before, he probably would think that the flight was nothing but a series of interruptions. But I've flown this route before. It's a long way from London to Singapore—7,600 miles. Sitting in an airplane for five to nine hours at a stretch may seem like speed, but I'll take the short hops even though you're at each stop in amazingly short time.

All those stops—seven between Singapore and London—are due to the relatively short range of the Comet. Those stages would have been appreciated in the DC-3 days, but the DC-6 and the Constellation have long ranges


Speeding
PRATT AND WHITNEY
AIRCRAFT
ANDREW WILLGOOS
TURBINE LABORATORY

Jet Development

Pratt & Whitney Continues to Expand Its Development and Test Facilities

PRATT & WHITNEY AIRCRAFT is taking another step forward to meet its heavy responsibility of providing the nation's armed forces with the best possible aircraft engines in the shortest time possible.

To keep up with our expanding role in jet engine development and production, we are undertaking a privately financed program, costing many millions, to enlarge our present jet engine development and test facilities.

As it stands today, the Andrew Willgoos Turbine Laboratory is the most complete privately-owned jet development facility in the world. This new expansion will greatly enlarge its capabilities. For example, at this time one of the Willgoos Laboratory's four test cells is especially equipped for high altitude testing. When this program is completed, three additional cells of even more advanced design will be available for testing turbine engines under conditions simulating supersonic speeds and altitudes of up to 55,000 feet. In addition, a number of experimental test cells in our East Hartford plant, which were formerly used to test piston engines, will be converted to accommodate jet engines, providing additional facilities for testing both components and full scale engines.

This constant expansion of test facilities is only one phase of our effort to make sure that America will have the finest aircraft engines built. Just as important is the continuously increasing effort in all phases of engineering that goes into every Pratt & Whitney engine.

Our expansion program is a major effort. It has already taken endless hours of planning and hard work. But the results will enable us to do a good job better—and faster. In the end, it will be an important investment in national defense.

Pratt & Whitney Aircraft

PRATT & WHITNEY AIRCRAFT DEPENDABLE ENGINES

ONE OF THE FOUR DIVISIONS OF
UNITED AIRCRAFT CORPORATION
EAST HARTFORD, CONNECTICUT

today so the Comet range stands out as being short. It is. But it is temporarily so. Comet II, which will be out before too long, will eliminate about every other stop on the Far East route. At the present time, the Super-Constellation will compete rather well against the Comet I in that you make fewer stops and arrive only a few hours later. But Comet II will be another story. As will Comet III in five years from now.

For the time being, with Comet I, passengers won't get much chance to sleep. They have seven hour-long ground stops. But they will be in the air only 19 hours as against 34 on the present Constellation. It poses a challenging sales battle among the airlines. My personal hunch is that the Comet will win over a lot of friends who would rather stop every two to three hours than take a longer time with fewer stops. Time will tell. All I can say is that I was much impressed as a passenger.

1,000 Feet Per Minute

The Comet descent is an interesting feature. It heads downward about 200 miles out. At about 25,000 feet altitude, the two inboard engines are throttled back and the descent is about 1,000 feet per minute but can go to 3,000 feet easily. After 10,000 to 12,000 feet at this rate, the captain puts on the air brakes which enables a much faster rate of descent. At about 2,500 feet, the inboard engines are revved up and the plane lands with all four engines in power for safety reasons. A lot of fuel is saved by cutting off the two engines at lower altitudes, since the Comet burns four times as much fuel at low levels as it does at high altitudes.

The Comet has fine maneuverability, especially on the descent when the pilot wants to skirt large cloud formations. On practice landings which we experienced at almost every stop even though no instrument conditions prevailed, the Comet seemed to me to be as maneuverable as any other.

A lot of time on the Comet I hops is consumed by climbing and descending. The actual cruising between one short stop on westbound routes—between Bombay and Karachi—amounts to 7 minutes, the rest of the time on the 500 mile hop being taken going up and down.

Much has been said about the Comet flying "above the weather" but the proper description is that it flies "above most of the weather." It is now pretty definite that airplanes will have to fly at 80,000 feet if they are to be over all of the weather. Especially in the tropics, the Comet often is in the weather at 40,000 feet. The cumulus build-up in the tropics extends to an estimated 80,000 feet at times. There have been Comet hops between two points entirely on instruments even at 40,000 feet. But in the temperate zones, 40,000 feet usually clears everything and for the average flight, this altitude does miss most weather conditions.

There can be turbulence at 40,000 feet. In fact there may be turbulence at that altitude when there is smoother flying at half that altitude. Much remains to be learned about high altitude weather, including exploration of the "jet stream"—a fast-moving narrow stream of air in the upper levels. For the bulk of flying, however, the high altitudes are definitely preferable and make for very smooth flying above "most of the weather."

On the trip to Singapore we had virtually no turbulence at all. Between Bangkok and Singapore we passed alongside the daily cumulus build-up over the Malayan jungles and this build-up extended considerably above our 37,000 feet height. But there are relatively few places where it is necessary to pass through such build-ups. Most jet flying can escape clouds altogether except when ascending or descending.

Oxygen Masks

The Comet crew of four wear oxygen masks as a safety measure but this is expected to be a passing phase. Only the captain has his mask fully attached and in operation, although he does not take in any oxygen unless the cabin pressure should go above 10,000 feet. The other crew members can make their masks operative quickly if needed. The Comet can descend at a rate of 12,000 feet per minute in an emergency, although no such emergency has occurred. Cabin pressure is maintained at 8,000 feet when the plane is at 40,000 feet. I have never experienced such a smooth-working pressurizing system, in fact I was completely unaware of any changes of altitude at any time.

Our route east was from London to Rome, to Beirut, Bahrein, Karachi, Delhi, Calcutta, Bangkok and Singapore. Another Comet route will take in alternate points such as Rangoon, Colombo, Bombay and Cairo.

This has been a hasty report on my first Comet trip. I have many unused notes. And there are many good technical and operating articles that have not yet been written about the Comet. But for this first yarn, I can say that I have been highly impressed with the workmanship and quality of the Comet as an airplane, its many novel and fine features, its good handling qualities, and its fine flight characteristics. As a passenger, I was mightily satisfied. The new jet age is a revolution not to be underestimated on any count.

Ellington: "Off-Shore" Unfair to U.S. Mfgrs.

U. S. aircraft manufacturers are being placed at a "competitive disadvantage" by some of the policies of the Mutual Security Agency with respect to the off-shore procurement program, according to Ken Ellington, assistant to the president of Republic Aviation Corp. Speaking at a meeting of the New York Exchange Club, Ellington charged that the money spent building up European producibility will place the European firms in a "superlative competitive position" when the MSA program is over.

In some instances, he said, American manufacturers have had to turn over technical know-how and designs, developed at great expense by American industry, to foreign firms, with no compensation for the property rights involved and without safeguards for the future commercial markets of the U. S. companies.

Ellington advocated providing American know-how, experience, capital and products through normal licensing methods "and so help them put their industries back on their feet, while protecting our own interests.

Tax Write-Offs Approved by DPA

Rapid tax write-offs totaling $50,878,349 and covering 80% of transport equipment purchases by American Airlines, Braniff Airways, Western Air Lines, and National Airlines have been approved by the Defense Production Administration.

These were the first approvals since DPA renewed its certificate of necessity program for air carriers on August 5. Write-offs, all at 80% of the amount certified, were:

- **American Airlines,** $12,603,500, presumably for DC-6A or DC-6B equipment now on order.
- **Braniff Airways,** $11,593,099 for 20 Convair 340's.
- **National Airlines,** $8,847,000 for eight DC-6B's, $6,972,000 for four DC-7's, and $4,614,000 for eight Convair 340's.
- **Western Air Lines,** $6,248,750 for five DC-6B's and spare parts.

United Aircraft Profits

A profit of $153,070, or 26 cents a share, for the nine months ended August 31 was reported by United Aircraft Products, Inc., Dayton, which now has an all-time high backlog in excess of $5 million. For the same nine months of 1951 the company sustained a loss of $10,893.

New ATA Technical Meeting Plan a Success

Policy session in Miami climaxes year-long string of airline-manufacturer at-the-plant conferences.

By JOSEPH S. MURPHY

THE SUCCESS of the Air Transport Association's revised schedule of maintenance and engineering meetings hung in the balance late last month as over 100 of the airlines' top engineering, maintenance, and labor relations representatives met in Miami to discuss general policy.

Earlier in the year technical people had met with engine and airframe manufacturers to discuss detailed service problems. Coupled with these meetings, the Miami policy session was the last link in the new chain which replaces the large annual airline-manufacturer engineering and maintenance conferences of the past.

At the close of the three-day session it was apparent that the new schedule had been a success and that the pattern of meetings for future years had been set. Planning next year's conference, a committee selected Miami as the repeat location of the conference, again to be scheduled in September. Santos Ceyanes, manager of Pan American's Miami overhaul base, was elected general conference chairman for 1953.

A discussion of the meeting structure itself brought these developments:

• **General agreement** on the value of the airline-manufacturer meetings held throughout the year. At least seven such meetings will be scheduled for next year.

• **Support** of other annual technical sessions, such as the Champion spark plug meeting, Vickers hydraulic conference, etc. The airlines tend to favor rotating these meetings among different manufacturers, and ATA will probably seek some solution through the Aircraft Industries Association.

• **Satisfaction** with the policy meeting in itself. It will remain a closed session and by proper choice of agenda will be beneficial to the small as well as the large airline.

The technical sessions held throughout the year have been a big success, according to those attending. Held with Pratt & Whitney and Wright Aeronautical among the engine manufacturers and Boeing, Convair, Douglas, and Lockheed of the airframe manufacturers, they did not suffer from the lack of manufacturer representation without authority, a weakness of the large engineering-maintenance conferences of the past. Held in the manufacturer's own back yard, the new sessions provide top management near at hand, available to answer the airline questions.

Anderson

Ceyanes

Testifying to the need for these sessions on an annual basis, the 1953 schedule will again include the manufacturers mentioned, with the Glenn L. Martin Co. added to the airframe manufacturer list. A tentative schedule for next year provides the planned meeting time and airline responsible for its arrangement with the manufacturer:

Boeing—*June*—Northwest Airlines
Convair—*February*—American Airlines
Lockheed—*March*—Chicago & Southern Air Lines
Douglas—*April*—United Air Lines
Martin—*May*—Pioneer Air Lines
Pratt & Whitney—*November*—Northeast Airlines
Wright Aeronautical—*January*—Trans World Airlines

The policy session, a discussion of mutual problems of airline maintenance and engineering, headed this year by R. L. Anderson, Chicago & Southern's Supt.-Engineering and Inspection, was highlighted by a description of British European Airways' maintenance incentive plan. Presented by John McGuire, BEA's works manager, the conference learned of its planning, introduction, and success. Started in November, 1948, it has provided BEA with a 25% increase in work capacity while reducing actual work schedules from a three-shift seven-day work week to a one-shift, five-day week.

Of considerable interest to the conference was a review of the effects of the use of fuel with high lead content and experimentation with Shell TCP to combat its effects. Brought to light was Northwest Airlines' shutdown of a TCP test within two weeks of its application to that airline's fleet of Boeing 377 airplanes. During the short period of its use NWA experienced extremely heavy deposits of a lead phosphate nature in the turbo-supercharger nozzle boxes and turbine buckets to the point where turbo efficiency was affected.

Reporting the status of military tests with TCP, Shell Oil Company's C. R. Johnson aroused considerable speculation that favorable results of the tests could bring about a military specification for TCP in all high octane fuel. The financial effect of such a step on the airlines was expected to be an increase in cost of about 1/10 of a cent per gallon.

A discussion of airline labor relations and contracts, headed by American Airlines' Joe Martin, provided an opportunity for exchanging ideas and experiences on such subjects as safety in relation to labor relations, and how disciplinary action is handled where poor workmanship and negligence are involved.

Capital Airlines' Russ Wageneck led the discussion of manpower forecasting, the general use of scheduled flight hours to forecast manpower requirements, and almost 100% application of past performance standards in forecasting future requirements.

Trans World Airlines' Ray Dunn guided the discussion of maintenance work methods, the use of a fixed dock overhaul shop arrangement versus the movement of aircraft from one work station to another.

All-American Airways' El Cheyno headed the discussion of personnel safety control featured by a talk on "safety control through production control" given by William B. Johnston of Marsh & McLennon, a Boston authority on industrial safety.

Conference Notes: Although well attended by airline engineering representatives, the agenda held prime interest for maintenance members. Only better distribution of agenda subjects will continue to attract engineering interest.

Selection of Miami for the meeting met with favor among many in attendance. Location offers those in attendance an opportunity to visit three airline overhaul bases located there.

TABLE I

Kinds & Amounts of Collegiate Training	Total No.	No. Hired as Supvsr.	No. Hired as Non-supvsr.	Average Annual Income	Average Airline Experience	Interval Between* Hiring & First Promotion	Average Age
None	25	4	21	$8,064	13 yrs. 2 mos.	1 yr. 9 mos.	39
Incomplete; some aviation	17	2	15	8,052	14 yrs. 9 mos.	3 yrs. 8 mos.	38
Incomplete no aviation	37	6	31	7,140	14 yrs.	12 yrs. 6 mos.	40
Complete; some aviation	15	1	14	9,549	12 yrs. 5 mos.	2 yrs. 8 mos.	37
Complete; no aviation	44	10	34	8,376	12 yrs. 11 mos.	2 yrs. 7 mos.	41
				Recapitulation			
College graduates ..	**59**	**11**	**48**	**$8,664**	**12 yrs. 8 mos.**	**2 yrs. 7 mos.**	**41**
All others	79	12	67	7,632	13 yrs. 10 mos.	2 yrs. 6 mos.	40
TOTAL	138	23	115	$8,073	13 yrs. 4 mos.	2 yrs. 6 mos.	40

** Average of those hired as non-supervisors.*

So He Has a Degree: What Does it Get Him?

Nothing but a better starting job, faster advancement, and higher pay, an industry survey reveals.

By Richard F. McGrath

HOW HELPFUL is a college education to an airline career? Almost everyone in the airline business, as well as a sizeable majority of educators, probably entertains definite opinions on this question. Their viewpoints, as reflected in an American Aviation survey (January 2 and February 4) seem as numerous and as diverse as the human beings themselves.

But what are the facts? Insofar as an American Aviation survey has been able to determine:

- **More than 42% of present airline** executive and managerial people are college graduates;
- **Among airline men,** college graduates enjoy about twice as much chance of promotion to higher jobs as do non-degree-holders;
- **College-graduate airline executives** not only earn appreciably more than do their fellow-executives with less formal schooling, they're also paid more than non-aviation college-graduate executives in the general business field;
- **College graduates with specific training** in courses related to air transportation are the highest-paid of all groups examined;
- **The situation is not so hopeful** for airline women, however. There are grounds for suspecting that advanced education may actually amount to a handicap to them.

These and other observations are based on two long statistical looks and several briefer glances at airline people around the industry.

One was a confidential questionnaire survey of 200 managerial people, carefully selected from 29 different airlines. Two-thirds were general-office personnel of corporate official, department-head, or sub-department-head status; the remaining third were regional and local managers.

Of the 200, 138 replied, anonymously listing age, education, income, length of experience, and the interval between date first hired into airline employment and the date of first promotion.

Other Source

The other basic source was a scrutiny of the personnel records of 198 employes hired in 1945 and still employed by a medium-sized domestic trunk airline. Considerable supplementary factual information was also made available by two additional carriers, one trunk and one local service, as well as by the CAB and many responsible individuals in the industry and in the academic field.

Since it is generally conceded that success in more technical jobs (such as pilot, mechanic, engineer, dispatcher, etc.) varies directly with relative amounts of previous technical training, no effort was made to gather comparative data on people in flight operations or in maintenance and engineering.

Attention was focused instead on station operations and traffic & sales, two departments which largely comprise personnel of general and unspecialized qualifications. Purpose was to find out whether or not a relationship exists between success in these departments and relatively unspecialized college training (ranging from liberal arts to economics. psychology, business administration, and a few in accounting and law).

Closer Look

A somewhat closer look was taken at traffic and operations people with training more directly related to aviation. Here the purpose was to point up whatever help such technical training might provide in two comparatively untechnical departments.

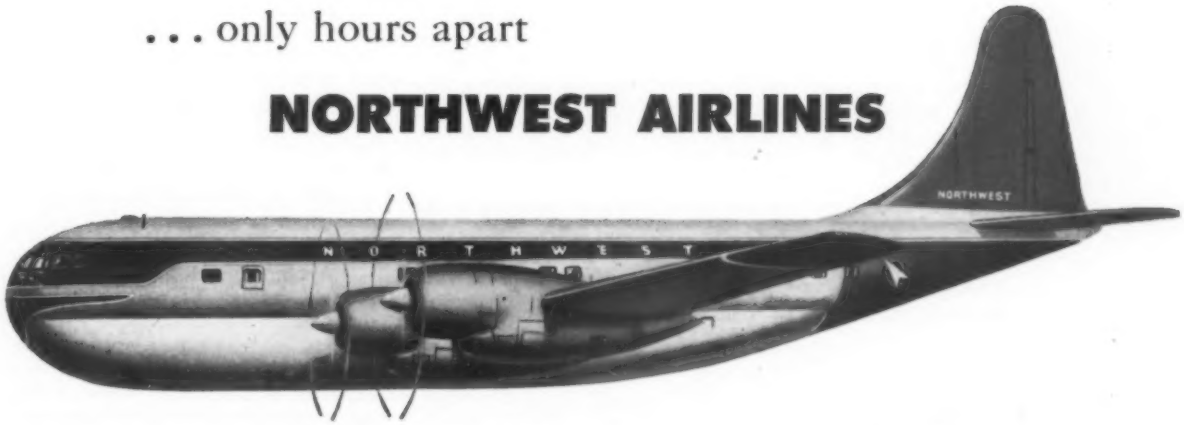
Reasonable effort was made to avoid lumping together in the same categories too many different kinds of employes and job types. A few subgroups are therefore small, but because of sharp differences among the groups and the fact that each is representative of much larger samples, moderate interpretations can be confidently hazarded.

It is evident in Table I, for example, that almost a fifth of the college graduates now in executive positions and a

4 corners of the earth

. . . only hours apart

NORTHWEST AIRLINES



EXCLUSIVE STRATOCRUISERS COAST TO COAST...HAWAII...ALASKA...THE ORIENT

THE ONLY ONE-CARRIER SERVICE ALL THE WAY!

TABLE II

Annual Income	All College-Graduate (#) Business Executives		College-Graduate (*) Airline Executives	
$7,500 & over	57%	82%	56%	93%
$5,000-$7,500	25%		37%	
$3,000-$5,000	15%	18%	7%	7%
less than $3,000	3%		0%	

Sources:

 # "They Went to College," Haveman & West, Harcourt, Brace & Co.

* American Aviation survey.

little less than a sixth of the non-grads were originally hired directly into supervisory jobs. These proportions are surprisingly high—especially so in view of frequent statements by both airline men and educators that the practice of hiring supervisors from outside company ranks is done "only occasionally, and then as a last resort."

Of those who had to inch up the ladder from the lowest rung, the men with the degrees had to toss cargo and push tickets for about as long as the non-grads did before getting their first supervisory promotions. It was apparently worth the effort, however: the graduates, now only a year or so older than the others, are earning 12% more with 21% less total experience.

The fair-to-middling success of those who went to college but didn't finish is significant.

The success of the air transportation and aviation majors (which, in added yearly income, amounts to around $1,000 on an investment made originally in the form of tuition) is a rebuttal to one of the arguments against collegiate education. This school of thought puts it this way:

"Colleges are like four-year intelligence tests. They don't educate you; they sift you. A diploma merely means that you're bright enough to begin learning the airline business—so why bother going to college at all?"

Such an argument loses its edge in the face of facts available in Table I. Obviously, specialized training in aviation amounts to more than "sifting."

For all its interest, however, Table I does little more than measure the progress of some "old-timers" of around 40 who used to be agents and the like before World War II and—except for military service—stuck with their airline jobs. It gives no information about former employes who weren't promoted or who left the business. Table III, however, gives a look at the current situation with a group of present-day employes, Indians and Chiefs together.

In Six Years

Here again, in competition with the fellows who either didn't attend or who didn't finish college, the male graduate does well for himself. His chances of becoming at least a chief agent or the equivalent at some time within a six-year span of employment, appear almost three times as great.

On the other hand, the picture is rather bleak for women graduates, whose chances seem to be about half those enjoyed by the degree-less girls. In fact, the outlook for all airline women of all educational attainments is none too bright. To permit any measure of progress at all among female employes, the definition of "supervisor" had to be relaxed sufficiently to embrace the "senior" classification—one notch below the "chief" level. Not one of the nine women was more than a "senior," but 42 of the 45 male supervisors were higher than "chiefs." The validity of this data, incidentally, is bolstered by strikingly similar figures from another airline.

No adequate explanation can be given for this apparent inequity. At any rate, these figures point up possible sore spots in employe relations. For example: the knotty personnel-policy question of whether or not to limit the occupational usefulness of all women because of an inconvenient propensity in most of them for getting married and raising families.

The over-all ratio of college graduates to non-graduates in Table III is reasonably representative of general population, among which five percent are degree-holding graduates. Six percent of the airline men and 17% of the airline women hired in 1945 finished college, and a spot-check of the inactive personnel files of the 1945 male and female hirees who later left the company establishes this as 8%.

It is obvious that applicants with diplomas, particularly males, aren't exactly being hired in droves by airline personnel offices. This trend is reminiscent of the clash of opinion between college educators and airline personnel people, concerning the airlines' alleged high-hatting of newly graduated college men who were interested in airline careers.

It now seems reasonable to suspect that the ones guilty of high-hatting aren't the airline executives; they're at least a few of the professors and their students. Tables I and III hint strongly that airline management places a high premium on a college education. On the other hand, more than a few responsible men in the academic field have adopted the deliberate policy of advising their students against considering airline employment.

One significant trend that may affect future statistics is best seen in comments offered by a well-known personnel executive, widely respected by labor as well as by management:

"Of our . . . employes, over [75%] . . . are covered by union contracts. In such cases, promotions are governed by seniority, in which college training may play little or no part in determining who is to be promoted."

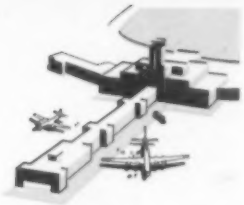
Another development which will possibly change the present pattern is the practice already adopted by a few airlines, in which inexperienced applicants with otherwise superior qualifications are launched on a series of different assignments in different departments and locations. Announced purpose is to provide diversified and practical airline backgrounds which will equip these preselected applicants for future managerial responsibilities. Information so far indicates encouraging success.

TABLE III

Progress Report: Six-Years After Hiring
(198 employes hired in 1945 by a domestic trunk airline.)

	MEN			WOMEN		
	College	Non-College	Total	College	Non-College	Total
Supervisory	7	38	45	2	18	20
Non-Supervisory	2	98	100	7	26	33
Total	9	136	145	9	44	53

In Baltimore, too, air travelers can step from the plane into a car from Hertz



here, as at 97 other airports, HERTZ is ready to give your passengers the finest car rental service!

Yes, the Hertz station at Baltimore airport is just one example of the excellent facilities and superior service offered by Hertz stations everywhere. For your passengers, who expect the best, only Hertz offers them *all* the advantages of car rental service.

Here are the reasons why HERTZ SERVICE is better for the air lines:

- Hertz, and only Hertz, can and does deliver cars to airports in more than 500 cities. Hertz maintains stations right at the airport in 98 key cities.

- Hertz with 28 years' car rental experience is dependable. It is the world's largest and only international car rental service—uniformly conducted in more than 500 cities throughout the United States, Canada, Great Britain, Mexico, Hawaii, Alaska and Switzerland.

- The Hertz national advertising program consisting of full page advertisements throughout the year in Life, Saturday Evening Post, Collier's, Holiday, National Geographic, Time, Newsweek, and U. S. News & World Report, promotes the Plane-Auto Travel Plan, creates new air travelers, puts new business on your planes and builds Hertz popularity and prestige.

- Your passengers, reserving cars from Hertz before they take off, can be sure of fine, new cars that are clean and properly conditioned. Gas, oil and proper insurance are included in the low rates.

- Your passengers can rent from Hertz day or night for any length of time and enjoy quick, courteous, efficient service. Hertz National Courtesy Cards and Charge Cards are carried by more than a million and a half men and women and are honored at all Hertz stations.

IMPORTANT!

See that your ticket sellers and information clerks always recommend Hertz Service to your customers. It's the world's finest car rental service... and promotion of Hertz Service will pay off in more customer good will and extra business for you. Also, promote this popular service in your national and local advertising, direct mail and counter literature, and other advertising programs.

- **Air Travel Cards—are honored at all Hertz stations. They serve as identification, eliminate deposit requirements and provide credit privileges if desired.**

For complete information write:

HERTZ *Driv-Ur-Self* **SYSTEM** Dept. C10, 218 S. Wabash Ave., Chicago 4, Illinois.

WANTED!

300,000 SKYWATCHERS

AIR ATTACK!... This alarm could be sounded in the U. S.—tonight, tomorrow, *any* time! If it is, then time will be priceless—every moment vitally important.

Fortunately we do have a warning system—a combination of radar stations and volunteer civilian skywatchers, the Ground Observer Corps. And the Air Force has protective squadrons of Lockheed Starfire interceptors ready to answer any alarm—climb quickly to the attack—locate and knock out invading bombers in any weather, day or night.

But unfortunately our warning system is not complete. We need 300,000 more volunteer observers! WE MUST HAVE MORE GROUND OBSERVER CORPS MEMBERS TO ASSURE 24-HOUR WATCH OF ALL VULNERABLE U. S. AREAS.

Radar cannot do the whole job, because ground stations can't always spot planes flying under 5,000 feet. The only immediate answer is sheer man power—patriotic men and women who will donate just a few hours each week to the security of the U.S. and themselves.

Too few people realize the need or urgency. *You* can help—by joining the Ground Observer Corps and by spreading the word. To volunteer, simply call your nearest Civilian Defense Office. Or send a postcard to Ground Observer Corps, United States Air Force, Washington 25, D. C.

Lockheed

Aircraft Corporation

Burbank, California, and Marietta, Georgia

Look to Lockheed for Leadership

ENEMY AIRCRAFT COULD PENETRATE U. S. DEFENSES

Early this summer top U.S. Air Force officials met with Civil Defense directors from 46 states and four territories, and reviewed in confidential detail the current efforts to defend America from surprise enemy attack.

"Despite a $300,000,000 radar fence around the nation's perimeter, gaps exist through which enemy aircraft could penetrate our defenses undetected," the meeting was told.

That's why America needs a total of 500,000 civilian skywatchers as members of the Ground Observer Corps. Nearly 200,000 have already volunteered.

"The only practical means of filling the gaps in our defenses is through a 24-hour operation by civilian volunteers," the meeting was told.

Why isn't America's radar network sufficient?

Defense gaps exists because of radar's line of sight principle, and radar's failure to penetrate opaque masses. Every mountain, every hill casts a shadow behind which enemy aircraft could sneak undetected. Even in perfectly flat country the curvature of the earth shortens the effective range. Equally alarming, radar is susceptible to jamming.

These gaps cannot be filled by Air Force personnel due to the staggering expense. That's why civilians are needed in 27 perimeter states to man Ground Observer Corps stations 24 hours a day. Here is a critical, patriotic job that requires just a few hours a week from each volunteer.

Aircraft too are an important part of our national warning system and of course are the backbone of defense against attack. Three advanced Lockheed planes play a vital role:

The WV-2 *Super Constellation* Early Warning Aircraft, developed for the Navy and the Air Force to extend radar's range in a whole new concept of national defense.

The P2V *Neptune* Navy Patrol Bomber, charged by the Navy with anti-submarine patrol and protection of U. S. coastal waters.

And the F-94C *Starfire*, the nearly automatic all-weather interceptor, which does the final job of climbing to the attack at terrific speed, locating the invaders, and shooting them down with more than human accuracy.

When the U. S. has all necessary planes and personnel—civilian and military—it will be difficult for enemy aircraft to penetrate U.S. defenses.

Extra Section

By William D. Perreault

DOUGLAS' A. W. Rebard, in his excellent paper before the Radio Technical Commission for Aeronautics last month, noted that 43% of all smoke produced in U. S. civil scheduled air carrier aircraft during the first six months of 1952 originated from electronic equipment. The figures, attributed to The Committee on Aviation Toxicology of the Aero Medical Association, emphasizes the need for reviewing electrical circuits and determining that each circuit is adequately protected. Even excluding the possibility of actual fire, smoke is a major danger in aircraft.

•

American Airlines has switched to the use of the words "flammable" and "nonflammable" in its maintenance manuals in describing items which will or will not burn, respectively. This decision highlights the long standing misunderstanding regarding the proper description of items which will not burn. Inflammable, the dictionary tells us, means capable of being burned. This is contrary to the popular use of the prefix "in" (such words as inconvenient, incapable, indiscreet, etc.) where it means "not" (not convenient, not capable, not discreet, etc.). While the dictionary is correct, there is a growing tendency to avoid the use of the misleading terms by officially adopting the more understandable terms.

•

An early version of the current crop of flying saucer reports is passed on by Sperry's **Carlyle Jones** as taken from a 1929 issue of the *Sperryscope:* "A farmer down South arrived home one night after stopping at the cider mill, tired from a fast drive to escape an approaching thunderstorm. He said the lightning was the most peculiar he had ever seen in that it came with clock-like regularity and was unaccompanied by thunder. It did not take long for the family to realize that he had innocently been trying to outrun an imaginary storm in the wake of one of the Sperry Revolving Air Beacons which operate in that region."

•

As you've probably heard, mice and monkeys have been competing for the honor of new altitude records as the military services have sent them spaceward in rockets to determine their altitude endurance and relate this to the altitude potential of human pilots. The accompanying cartoon commentary on the situation, courtesy of Reaction Motors' house organ, *The Rocket,* **originally appeared in the British** *Sunday and News Chronicle:*

"Captain Frisbee, meet our chief test pilot."

"You were right, Captain—it IS green cheese."

Heat Output Plagues Electronic Equipment

Tube failures, major equipment headache, due mainly to overheating, radio commission hears.

By William D. Perreault

THE ELECTRONIC TUBE is the weakest link in the ever growing field of electronics in aviation—electronics for communications, navigation, control, and many other functions. Late last month, meeting in Buffalo, N. Y., the Radio Technical Commission for Aeronautics got the latest word on developments in this important field:

- **Tube failures** account for approximately 60% of all electronic equipment failures.
- **Heat** is probably the most deadly of the tubes' enemies, but system and circuit designs which tax the tubes' inherent ability are no small factor.
- **No relief** for the heat problem is in sight, although several long-range solutions are being worked on.
- **Heat output** of electronic equipment in conventional transport aircraft types has doubled in the past two years, promises to double again in the near future.
- **The trend** to miniaturization and more compact sets will further aggravate the problem, as will high altitude flight, which brings with it many electrical and electronic problems unknown to current commercial operations.

The seriousness of the electronic reliability problem in aircraft was emphasized by RTCA's willingness to shift attention from its long-time whipping boy, the air traffic control and navigation problem, to look more earnestly at the Frankenstein monster which these and related systems are creating for operations and maintenance crews.

The 2,500-odd tubes in a modern bomber are so critical to the plane's functions that failure of a single tube can sometimes create a major hazard. Some advanced guided missiles involve more electronics engineering and equipment than aviation effort.

Fully aware of these developments, RTCA's fall meeting assembly was held in Buffalo, home of Cornell Aeronautical Laboratory, where considerable work in electronics is underway, and devoted a full day to reviewing Cornell's associated research activities. This followed a day in which six technical papers, ranging from trends of development in primary electrical power and distribution systems (presented by Lockheed's Henry Rempt) to effects of high altitude conditions on electronic equipment (presented by Convair's W. H. Crow) were presented.

One of these sessions was moderated by General Electric's E. E. Herzog, while the other was handled by Admiral W. E. Cleaves (Ret.), until recently with Collins Radio but now assistant to the general manager of Bendix Radio.

Speaking for Douglas Aircraft Company, W. W. Rebard introduced some specific figures into the discussion. He noted that in an eight-month period this year one major airline experienced 1,150 tube failures in radio receivers and transmitters, interphone circuits, and navigation equipment.

In formal papers and in the discussion periods it was made amply clear that not all of this trouble was attributable to the tube itself. The fact is that a majority of the tubes removed from VOR navigation receivers, which are said to account for about 60% of all tube failures, would perform all right if used in other circuits after being removed as malfunctioning. The VOR system is too demanding.

Further, there is no standard for reliability or useage. There are many tubes now considered "unreliable" which might go 500 hours without trouble. But there is no means of knowing when this tube has put in 500 hours of service and ultimately, when it fails, it can upset a critical aircraft function. Some simple means for logging component time is needed but is not in sight.

Rebard said the standard Douglas DC-6 electronic rack equipment dissipated about 1,700 watts in the form of heat energy. With the introduction of the DC-6B this was up to 2,000-2,500 watts and in one case to 3,500 watts. He predicted a future transport with 7,000 watts dissipation requirement.

Today heat in electronic installations is being combatted by increasing air circulation through the mounting racks. Basic packaging shortcomings contribute to the dilemma, Rebard claimed. Louvres on electronic housings were "seldom near the top; almost without exception point downward, which prevents the trapped hot air in the upper part of the case from getting out;" no pressure differential is provided to assure air flow through the cases; and crowding together of hot equipment minimized the effect of circulated air.

If present attempts at cooling were carried over into high speed, high altitude aircraft, Rebard told RTCA, an estimated 275 horsepower, in terms of thrust and drag, would be required to cool electronic equipment having only nine horsepower input.

Douglas is conducting a test program which is aimed at increasing the cooling efficiency now experienced (about 3%) to about 10%. This is by the use of common collector ducts on

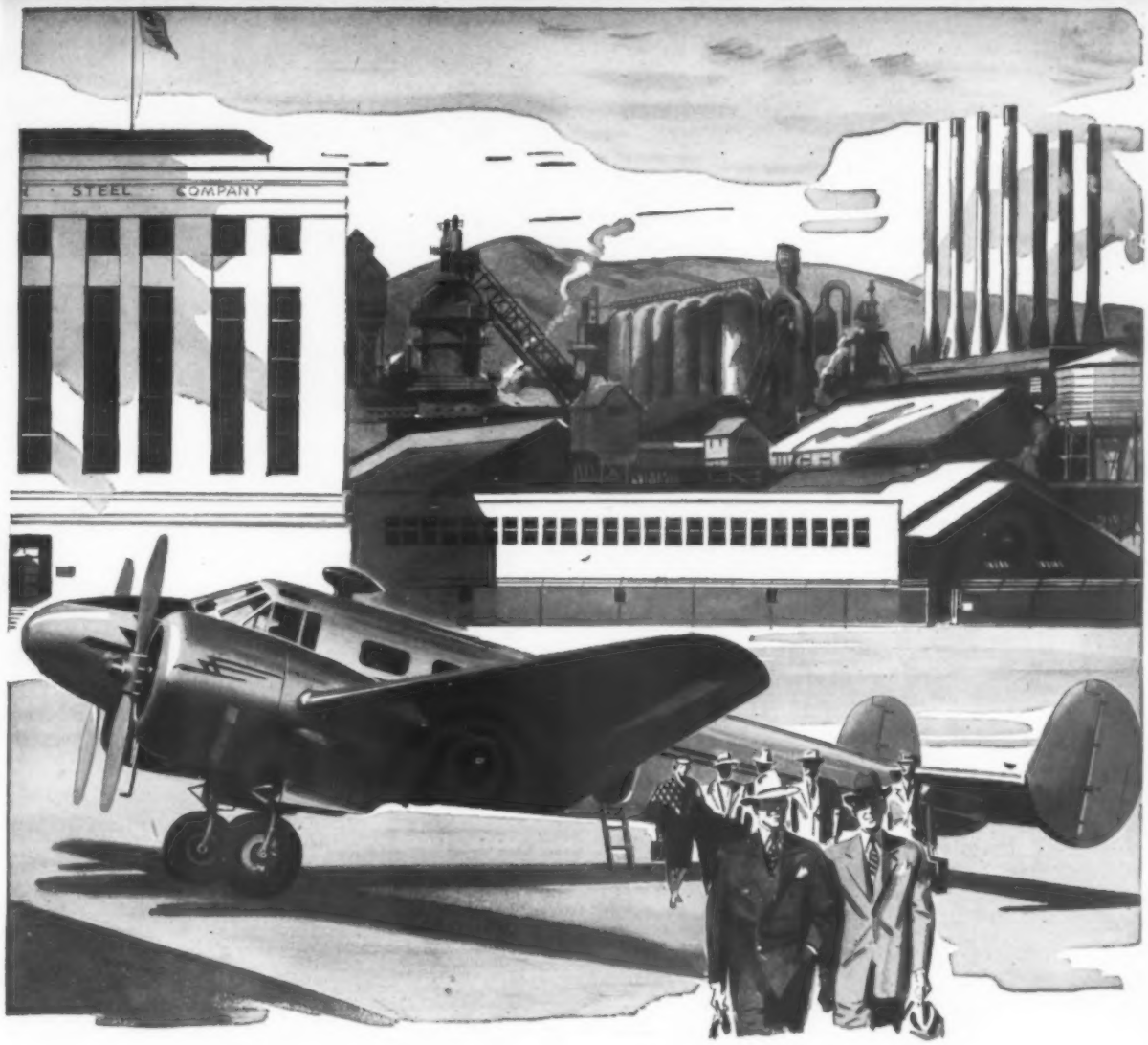
ILS Plus Sound

MODIFIED instrumentation for the instrument landing system, featuring audible signals which can be used in conjunction with or separate from the visual cross pointer indicator readings, was disclosed to RTCA members during their visit to the Cornell Aeronautical Laboratory.

Known as the Binaural Guidance System, the system was designed to leave the pilot's eyes free to monitor other flight instruments during the critical phase of the landing while still getting ILS guidance data. Specifically the airborne equipment is modified to provide coded dot-dot-dash tones in the pilot's ear phones in a phase and intensity which relates to the aircraft's position with relation to the glide path and localizer.

If the pilot is on course the dots are heard in both ears simultaneously, but when the plane is off course the dots shift to the left or right ear depending on whether the pilot is to the left or right of the course. Vertical guidance is provided by varying the dot-dot-tone frequency with respect to the constant dash tone frequency. High, normal, and low paths are given by dots higher than dashes, dots the same as dashes, or dots lower than dashes, respectively.

In the experimental installation in a Link trainer the system has proved very effective even when the visual signals were completely blanked off.



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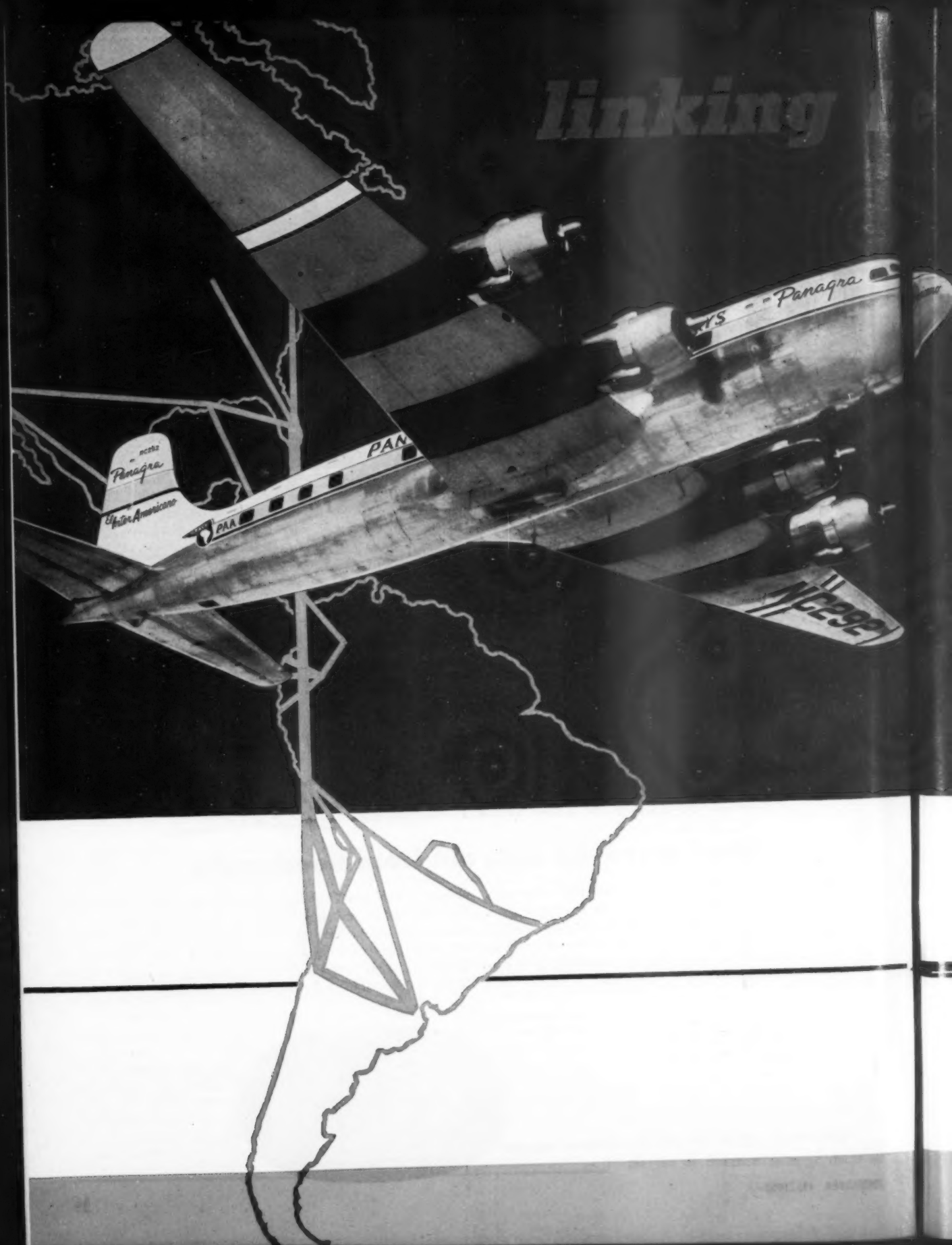
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each shelf with provisions for connection into each ATR case by a rear or bottom opening. Orifice plates will control air flow through individual pieces of equipment.

Referring to a packaging method used by Raytheon Corp. as the "ultimate in efficient cooling," Rebard described it as a heat sink method which is some years away as an industry practice since it will require a whole new set of standards. Essentially the Raytheon cooling is accomplished by providing optimum contact area between high temperature units and packaging, and providing a path of conduction to the mounting plate or heat sink. This is provided with air flow so that the mounting plate acts as a heat exchanger.

Looking a little further into the future, Cornell Aeronautical Laboratory's Jim Welsh projected a more rosy picture. Studies sponsored by the Navy's Bureau of Aeronautics show promise of greater temperature tolerance, general reliability, and longer life, he said. In the next five to 10 years Welsh predicts power type equipment, such as transmitters, will have 250 watts output per cubic foot of space. Units will be packaged in building blocks for ease of maintenance, each hermetically sealed and cooled by forced circulation in the bases.

Transistors

In the lower power units Welsh predicted wide use of transistors and varistors bringing about reductions in component size. These will not eliminate the heat problem, not because of the heat generated as in the case of tubes, but because of the extreme sensitivity of transistors to temperature changes. Some transistors react adversely to temperature changes of as little as 10° Centigrade. This will speed expendable evaporative cooling systems and force the introduction of new condenser and resistor components capable of operating in contact with Freon without damage.

Cornell's studies to date have shown that all too little is known about cooling electronic equipment. Manufacturers still determine cooling fin requirements by costly cut and try methods. Out of the present Cornell studies will come a manual of design practice to guide manufacturers in future design work. They may also lead to automatic assembly techniques for printed circuits, which, while promising, today require watchmaker-type skills.

In an informal talk on high altitude electronic problems, Convair's W. H. Crow gave the airline representatives at the meeting something to think about as they consider future jet aircraft designs. Discussing experience with the B-36, he described moisture condensa-

tion as so bad that the components filled with water, which shortly thereafter froze solid and broke open the housings. This condition is aggravated by operations which see the aircraft temperatures going from as high as 130°, standing on the ramp at the airport, to well below freezing in the course of 15 minutes time.

The possibility of the plastic pilot canopies of fighter type aircraft serving as antenna was raised by Dr. Harold Schutz of Glenn L. Martin Company in an informative paper on antenna development for high speed aircraft.

Schutz said that experiments with this type installation have been successfully made. In these instances holes are drilled in the plastic and suitable fluids used to act as the antenna radiating surface. This permits a large antenna surface on aircraft which otherwise impose structural and aerodynamic limitations on this equipment.

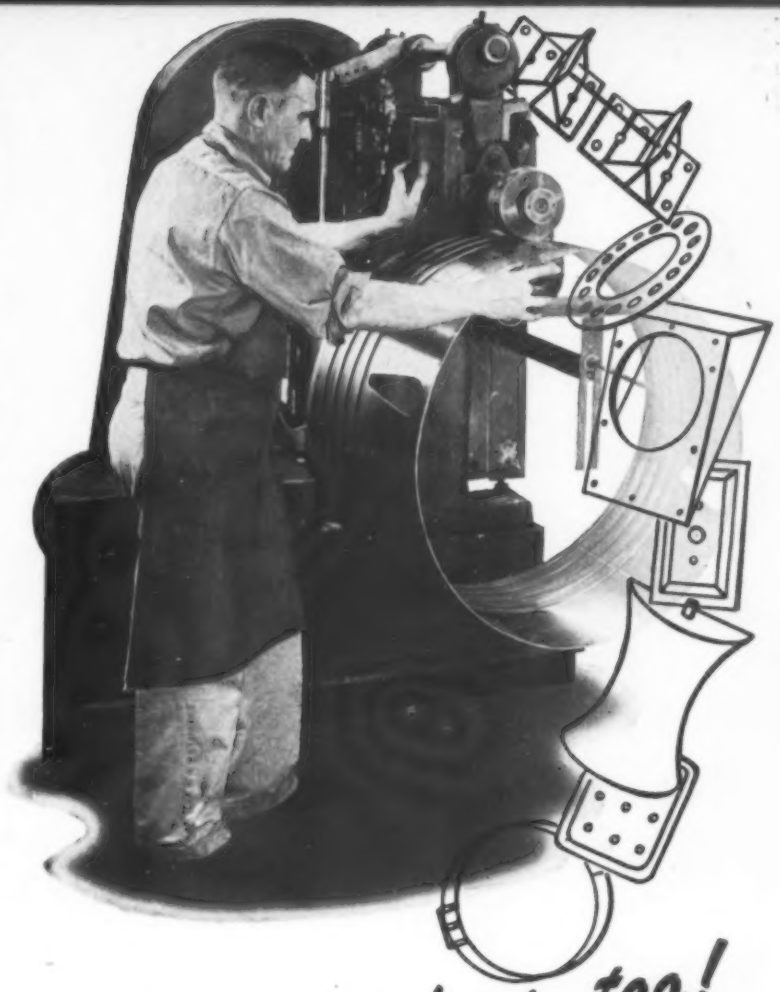
Schutz also showed a photograph of an entirely new type antenna which is flush mounted with the skin of the aircraft, the reflector of the antenna forming part of the fuselage contour. He said the details of this design are classified but indicated it had proved effective over a wide range of frequencies.

IATA Warns Against Unilateral Protection

The Eighth Annual General Meeting of the International Air Transport Association in Geneva last month warned against the serious effects of attempted unilateral regional protectionism by governments on the world rate structure.

Alarmed by tendencies of governments in some parts of the world to secure by unilateral action a degree of local protection for some particular airline, region, or route, the General Meeting urged governments to "remedy a situation which is fraught with danger to international air transportation."

Asserting that the fundamental issue which faces international air transport is the "steady development of air transport in the interest alike of the public and the industry as a whole," rather than the protection of any particular operator, the meeting agreed that: "Most carriers are making plans for the purchase of quantities of new and highly expensive equipment involving tremendous capital outlay and it is feared that these local unilateral efforts may bring about a situation which will prevent steady development or the efficient use of that equipment in a year or two. Measures of local protection will not, in the long run, do anything but harm . . ."



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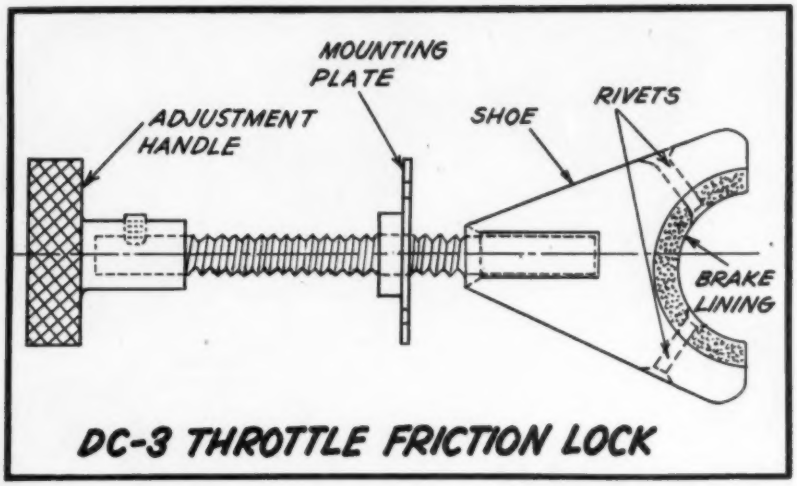
First in Aviation

Maintenance Bulletin Board

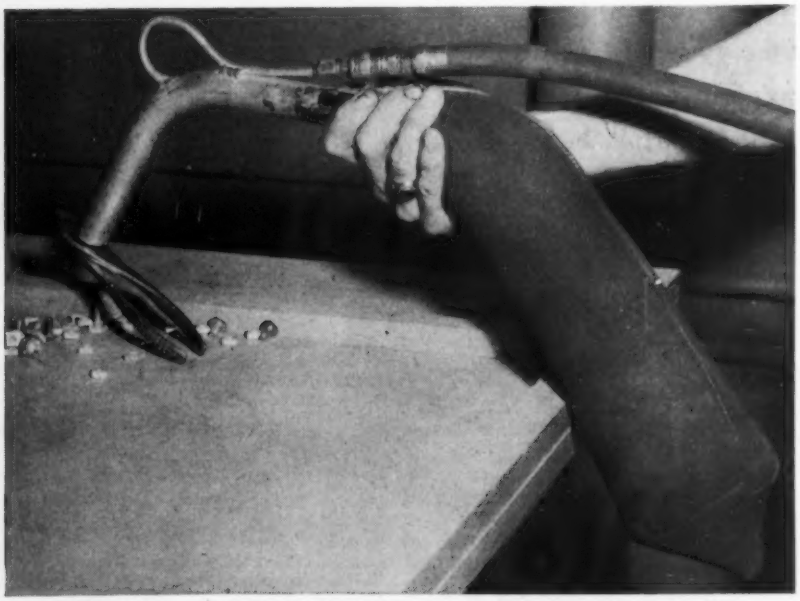


DC-3 THROTTLE FRICTION LOCK

Friction Lock for DC-3 Throttle

A throttle friction lock which replaces the band type throttle lock on Empire Air Lines, Douglas DC-3's features ease of replacement and positive locking action with only a ¼ turn of the knob.

Designed by Empire's crew chief, Bernard Piraino, the new lock uses ordinary automobile brake lining for the shoe. Replacement of the lock involves only the removal of three machine screws, requiring about five minutes elapsed time. The full floating design of the shoe has been found to prolong the life of the lock nut and shaft threads from 300% to 400%.



POWERFUL VACUUM CLEANER for use in wing fuel tanks and other hard-to-reach places measures only 12 inches in overall length and brought W. O. Nalls, TEMCO Aircraft Corporation employee a $50 suggestion award. Main tube is one-inch stainless steel pipe. A ¼" pipe adapted to an air line fitting on one end and welded to the main tube on the other end delivers air directly down the straight portion of the tube, creating vacuum.

Flashlight Bulb Change Saves TWA Money

Trans World Airlines estimates that it uses well over 100,000 flashlight batteries annually. The most recent step taken by TWA to extend the life and reduce the cost of these batteries calls for a change in purchase specifications for flashlight bulbs. A lower amperage bulb, but one that transmits sufficient light, has been made standard.

In the past TWA used PR2 and PR3 bulbs, each with a 0.5 amperage draw and having a 2.38- and 3.57-volt rating, respectively. The newly adopted bulbs, PR6 and PR7, each have a 0.3 amperage draw with 2.47- and 3.7-volt rating.

The new bulbs are classed for use in industrial flashlights, their filament design being adapted to give longer life under relatively constant usage. The PR2 and PR3 bulbs are designed for flashlights of the household type, the use of which is intermittent.

New Oil Service Instructions for C&S

Oil servicing instructions recently adopted by Chicago & Southern Air Lines for its Lockheed 649 aircraft specify a normal servicing to 35 gallons per tank and a maximum of 45 gallons depending on the fuel load and operating conditions.

C&S procedure calls for using the 35-gallon oil limit when fuel loads are 3,900 gallons or less, and 40 gallons for higher fuel loads. The 45-gallon limit applies under abnormal operating conditions, such as extra-long-range flights, higher oil consumption, etc. Basing its normal oil consumption on one gallon per hour, C&S also specifies that intermediate stations, which do not normally fuel aircraft, must determine that sufficient oil remains in each tank to insure that the quantity will not drop below 25 gallons before arrival at the next fuel and oil stop.

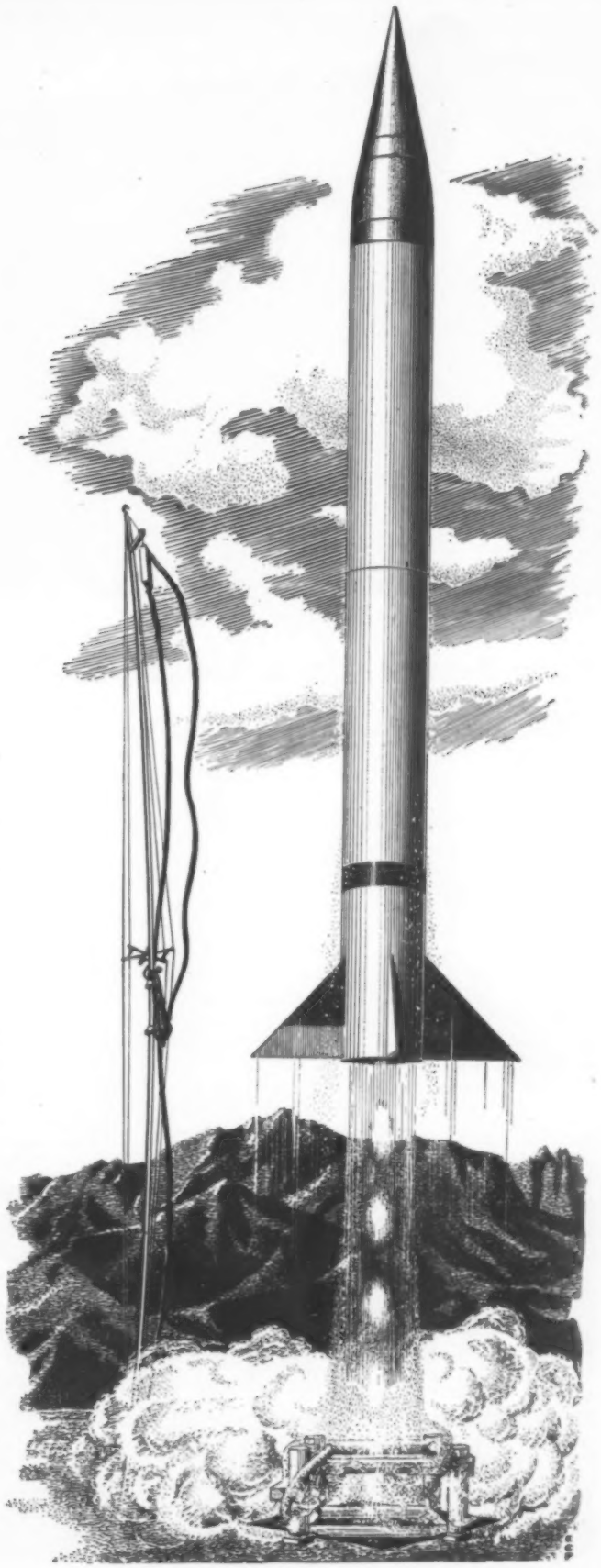
The 45-gallon limit in the 51.6-gallon tank is intended to prevent the possibility of a liquid lock resulting from oil in a full tank draining back into the engine through the oil return line. The check valve in this line is being removed by C&S to simplify the engine installation.

Research Rides a Rocket

The Naval Research Laboratory's Viking rocket research at White Sands Proving Grounds, N. M., hunts facts, figures and formulas in the upper atmosphere.

HURTLING far into the blue, Naval Research Laboratory rockets ask questions of the earth's upper atmosphere . . . flash back the answers needed to guide the designers of tomorrow's piloted and pilotless super-altitude systems for peace or war. What are the pressures and temperatures of the earth's atmospheric layers . . . the high-altitude changes in the earth's magnetic field affecting navigational instruments . . . the alterations in radio waves caused by the ionosphere . . . the effects of sun spots on communications equipment out beyond the filtering effects of the earth's heavy atmosphere?

Martin Viking rockets play a major role in this high-altitude flight research program. Last summer, the Viking cracked the world's altitude record for single-stage rockets . . . nosing 136 miles into the heavens at a top speed of 4100 m.p.h. Now, an even more powerful Viking is being readied for launching. The Martin Company is proud to be a partner with the Naval Research Laboratory in these vital activities . . . helping to prove that America's most valuable secret weapon is its scientific leadership! THE GLENN L. MARTIN COMPANY, Baltimore 3, Md.



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Auto Bumper Jack Speeds Overhaul

Although the 20th anniversary of the delivery of the first Douglas DC-3 is only a few years away, new ideas continue to crop up on its maintenance. The latest brought to our attention by K. W. Stevenson, maintenance coordinator at Frontier Airlines, is an adaptation of an automobile bumper jack used for separating the DC-3C exhaust stack and heat exchanger during overhaul.

Developed by William Howard, a mechanic with Frontier, the new tool eliminates need for hammering the stacks, the "mutilating" method formerly used. Using the jack, which grips the stack parts through two ring clamps and short chains, the time required to separate the parts has been reduced from an average of six man-hours to 30 minutes.

Wet Floor Safety Tip

A cure for the wet floor hazard while airplanes are being cleaned is suggested in an adaptation of an ordinary rubber boot modified by El Cheyno, All-American Airways' director of maintenance.

Pieces of rug material cut to the shape of the sole and heel of the boot are cemented to it with Plastibond. The result is a surer footing on a wet floor and a potential accident avoided.

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Daily Plane Utilization

INTERNATIONAL

		May	June
American	4 eng. pass.	5:20	5:18
	cargo	....	5:01
Braniff	4 eng. pass.	7:52	8:12
C & S	2 eng. pass.	7:20	9:56
	4 eng. pass.	8:55	9:29
Colonial	2 eng. pass.	....	8:04
	4 eng. pass.	7:30	8:30
Eastern	4 eng. pass.	10:11	9:23
National	4 eng. pass.	9:55	8.49
	cargo	2:00	....
Northwest	4 eng. pass.	6:13	7:32
	cargo	7:06	8:33
Panagra	2 eng. pass.	3:11	3:09
	4 eng. pass.	4:41	4:52
Pan American			
Latin Amer.	2 eng. pass.	3:38	3:47
	4 eng. pass.	6:56	8:12
	cargo	2:49	4:17
Atlantic	2 eng. pass.	:15	:30
	4 eng. pass.	5:35	6:16
	cargo	7:08	4:11
Pacific	4 eng. pass.	6:26	7:01
Alaska	4 eng. pass.	8:47	9:56
	cargo	9:47	13:03
TWA	4 eng. pass.	6:23	7:46
	cargo	....	1:28
United	4 eng. pass.	5:35	5:58

DOMESTIC

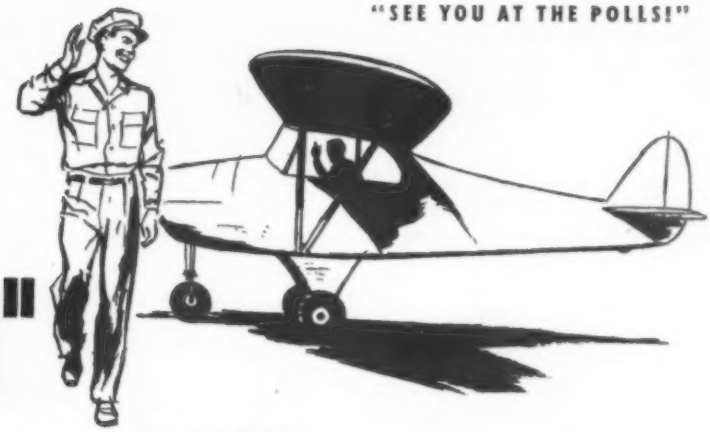
		May	June
All American	DC-3	5:10	6:05
Bonanza	DC-3	4:35	4:40
Central	DC-3	6:12	6:06
Empire	DC-3	4:43	4:39
Frontier	DC-3	7:26	7:28
Lake Central	DC-3	5:50	5:55
	Beech Bonanza	1:37	1:30
MCA	DC-3	5:41	6:10
Mid-West*	Cessna 190	3:16	....
Mohawk**	DC-3	4:43	5:46
Ozark	DC-3	6:27	6:43
Piedmont	DC-3	7:01	7:00
Pioneer	DC-3	6:50	6:30
	Martin 2-0-2	....	3:49
Southern	DC-3	6:00	5:54
Southwest	DC-3	6:26	6:38
Trans-Texas	DC-3	5:33	5:14
West Coast	DC-3	4:31	5:31
Wiggins	Cessna T-50	1:43	2:44
Wis. Central	DC-3	6:32	6:50

** Mid-West Airlines terminated operations as of May 15, 1952. Utilization for April not previously reported 3:45.*

*** Formerly Robinson Airlines. Change in name effective August 23, 1952.*

NEW INSTALLATIONS, new time saving ways of doing old jobs, tools you develop or modify—all go toward making the Maintenance Bulletin Board a valuable place for men in the industry to swap ideas. Why not send in your contribution today? (P.S. Good photos make the story even better.)

"SEE YOU AT THE POLLS!"



Nobody knows for sure how it started — this line about "See you at the Polls!" we're hearing all over these days.

Best explanation seems to be that it came from that state candidate out west . . . His opponent in a debate got all riled up and challenged him to fight it out in the alley.

But he said—"I'll settle this the AMERICAN way—I'll see you at the polls!"

And the audience picked up the chant.

Now everybody's saying it—and on Nov. 4 everybody will be doing it!

"SEE YOU AT THE POLLS!"

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Ditching Errors Hit Hard in CAB Reports

Strikingly similar forced landings draw Board's fire, but—months later—regulations stand unchanged.

TWO SCHEDULED airline transports, both Douglas DC-4's, made forced water landings early in 1952. A total of 88 passengers and crew members lost their lives in these two accidents. In two of its most strongly worded accident reports in recent times, the Civil Aeronautics Board last week attributed many of these deaths to faulty ditching procedures and inadequate briefing of passengers.

Probable cause of the Pan American World Airways accident off San Juan, Puerto Rico, on April 11, in which a DC-4 crash-landed shortly after take-off, was cited by CAB as the company's inadequate maintenance in not changing the Number 3 engine, which resulted in its failure immediately after take-off, and the persistent action of the captain in attempting to re-establish a climb following the loss of the engine without using all available power. This resulted in a nose-high attitude, progressive loss of airspeed, and settling of the aircraft at too low an altitude to effect recovery.

Probable cause of the Northwest Airlines accident at Sandspit, British Columbia, on January 19, in which a Douglas DC-4 crashed in the waters of Hecate Straight less than a mile off shore, was cited by CAB as the high approach to the airstrip and the attempt to become airborne again at insufficient air speed, resulting in the aircraft settling into the water.

Similarities

• **The two accidents both followed engine trouble.** In the case of Pan American's flight, an engine failed shortly after take-off. The engine had been reported performing poorly. Mechanics checking the engine oil screen and sump plug found metal flakes in both and later in the nose section.

Errors in judgment were made, CAB claims, in the method used to determine the source of these metal flakes, in failure to follow company procedures in testing the engine after corrective steps were taken, and in the crew's failure to check the log book prior to take-off. Testimony of witnesses established ample evidence that the engine should have been changed prior to dispatch of the flight.

In the case of Northwest Airlines it was established that the engine which failed had logged 1,725 hours flight time, 225 hours above NWA's approved overhaul time with this Pratt & Whitney R-2000 engine. It was an honest error, CAB found. The engine had been shipped to NWA by TWA with 790 hours flying time on it, although a top overhaul had been performed on it. Somewhere the filing system broke down and flight dispatch, which controlled routing and assured changes within authorized limits, did not know this was not a zero time engine.

Failure of a single engine is not normally critical on this type transport. In PAA's San Juan accident CAB established that the plane should have been able to continue to climb following loss of the engine. But, CAB claimed, the pilot used rated power rather than take-off power when the plane continued to lose altitude, aggravated by the captain's flight procedure, which included keeping the craft in a nose-high attitude. By the time rated power was applied it was too late.

Another Failure

Failure of the NWA engine caused the pilot to change the non-stop Elmendorf (Anchorage)-McChord AFB (Seattle) flight plan and divert to Sandspit. The weather at Sandspit was above minimums but poor. The runway was covered with snow and ice and lit by kerosene lamps, the runway lights being snow covered.

Approaching on three engines, the pilot set the plane down about one-third of the distance along the runway, decided to go around, and applied power for take-off. The attempt was unsuccessful. The plane lost speed and gradually settled downward into the water. Possible ice accretion on the wings or in the engines may have accounted for the plane's sluggishness.

Thus both planes crash landed as an indirect result of the engine failures.

• **The critical similarity** in these accidents is the matter of ditching. In the PAA accident the crew knew ditching was imminent, dumped fuel, warned the tower and, after a fashion, notified the cabin attendants. The cabin attendants donned their life jackets and strapped their seat belts, but failed to warn the passengers until after the

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GRAND CENTRAL AIRCRAFT CO.
Municipal Airport, Tucson, Arizona

Increased Capacity—Better Skill—More Facilities—Higher Quality—these are reasons why Grand Central has marched forward; so that today, it ranks among the important units in the nation's aircraft strength.

In every phase of Aviation Modification, Overhaul and Engineering, Grand Central is delivering the goods. In the military field, we are proud of our service to the nation. In the civilian field, our work is unsurpassed, and the confidence that is continually expressed in our output has been won by reason of skill and integrity... With its twenty three years of growth and progress, Grand Central continues to march forward.

Alis Et Animo

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plane made the forced landing. Only then were the passengers told of the life-vest location.

Passengers ignored the captain's order to abandon ship and he proceeded to evict them forcibly through the main cabin door until a wave (waves were reported 10-15 feet high) threw the door wide open and took the captain overboard. Although one twenty-man raft was carried to the main cabin and launched through an emergency exit, attempts to loosen additional rafts, stored in the space-limited flight compartment, were defeated by rising water.

Seven of the 12 survivors abandoned ship through emergency cabin exits, four through the main cabin door, and one through the cockpit window. High seas hampered the rescue activities of two Coast Guard PBY's, two USAF flying boats, and a Coast Guard cutter.

Said CAB: "Additional lives might have been saved if previous instructions had been given the passengers in the location and use of the jackets."

Different Vests

At Sandspit the NWA crew gave the passengers no warning of impending ditching because it was not anticipated. Three-engine operation is not considered an emergency and no opportunity existed after the missed approach. Passengers had been provided with booklets describing operation of the life vests, but the vests on board were basically different from those described. Only one passenger is known to have donned a vest successfully.

Attempts to launch the forward life raft failed when it stuck in the astrodome opening. No attempt was made to launch the two rafts adjacent to the main cabin door. All passengers and the crew evacuated successfully, making their way back along the fuselage to the tail or swimming to the right wing tip as the plane settled. The seven survivors were rescued from the wing tip by a boat launched by the radio operator at the airport. This boat had to be carried out of winter storage to a launching site.

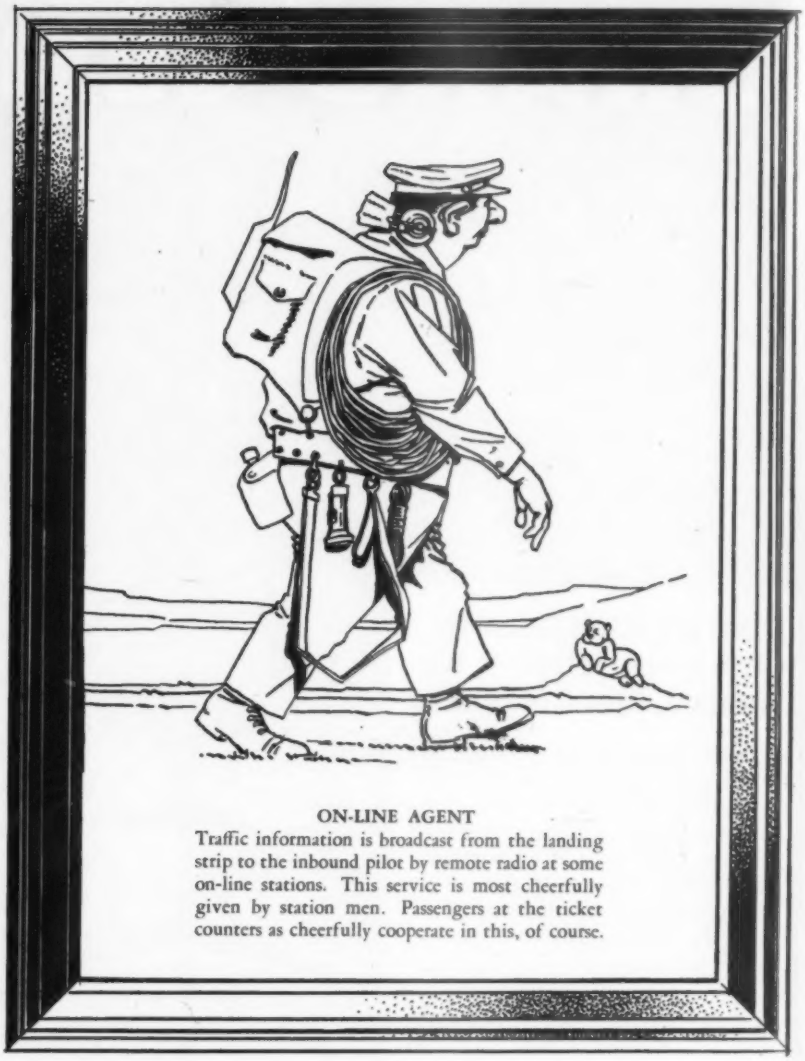
Lives lost in this accident were primarily due to exposure, since immersion in freezing water for as little as 15 minutes usually causes unconsciousness, but successful use of the rafts would have saved many. The life vest incident is difficult to assess in terms of lives lost or saved.

As a result of these accidents CAB has proposed tighter regulations requiring use of approved rafts and vests, improved accessibility, better training, and briefing of passengers in a more realistic manner.

At this late date there is still no action on these regulations.

Ready for Hanging

One of a series of selected portraits of some very select members of the airline family, as seen by the eye of Richard E. Chamberlain.



ON-LINE AGENT

Traffic information is broadcast from the landing strip to the inbound pilot by remote radio at some on-line stations. This service is most cheerfully given by station men. Passengers at the ticket counters as cheerfully cooperate in this, of course.

New Staff Members for American Aviation

Two new writers have been added to the staff of American Aviation Publications, and two changes in staff duties announced. Added to the staff are Hal Tufty, engineering editor, and Wallace Longstreth, managing editor of AAP's daily *Traffic News*. Longstreth succeeds Preble Staver, who was recently made legislative editor for the company publications.

Promoted to the position of managing editor of the *Official Airline Guide*, the airline industry's official flight schedule reference, is Robert R. Parrish, who until recently served as production manager for the OAG in the company's Chicago offices. He succeeds C. N. Johnson, who recently resigned.

Hal Tufty holds a mechanical engineering degree and served as a naval aviator during World War II. He has worked with the Stinson division of Consolidated Vultee, and currently holds a CAA commercial pilot's license with land and sea ratings. His writing background includes service with Tufty News Bureau covering legislative activities in Washington, work with the Denver *Post* here and abroad, and most recently work with the Mutual Security Agency in Paris.

Longstreth served six years with Capital Airlines in work directly related to his new post as managing editor of *Traffic News* and related activities for *American Aviation Daily* and AMERICAN AVIATION magazine.

INFORMATION on positions at NORTHROP

Northrop Aircraft, Inc. is engaged in vitally important projects in scientific and engineering development, in addition to aircraft production. The program is diversified, interesting and long-range. Exceptional opportunities await qualified individuals.

The most responsible positions will go to top-caliber engineers and scientists. However, a number of excellent positions exist for capable, but less experienced, engineers. Some examples of the types of positions now open are:

BOUNDARY LAYER RESEARCH SCIENTISTS... ELECTRONIC PROJECT ENGINEERS... ELECTRONIC INSTRUMENTATION ENGINEERS...RADAR ENGINEERS... FLIGHT-TEST ENGINEERS...STRESS ENGINEERS...AERO- AND THERMODYNAMICS...SERVO-MECHANISTS...POWER-PLANT INSTALLATION DESIGNERS... STRUCTURAL DESIGNERS...ELECTRO-MECHANICAL DESIGNERS...ELECTRICAL INSTALLATION DESIGNERS... ENGINEERING DRAWING CHECKERS

Qualified engineers and scientists who wish to locate permanently in Southern California are invited to write for further information regarding these interesting, long-range positions. Please include an outline of your experience and training.

Allowance for travel expenses.

Address correspondence to Director of Engineering,

NORTHROP AIRCRAFT, INC.
1043 E. BROADWAY
HAWTHORNE, CALIFORNIA

U.S. Air Force Northrop Scorpion F-89s are guarding America's boundaries in ever-increasing numbers. The Scorpion is designed and built by the engineers and craftsmen who produced the deadly Black Widow P-61 of World War II fame.

NORTHROP AIRCRAFT, INC.
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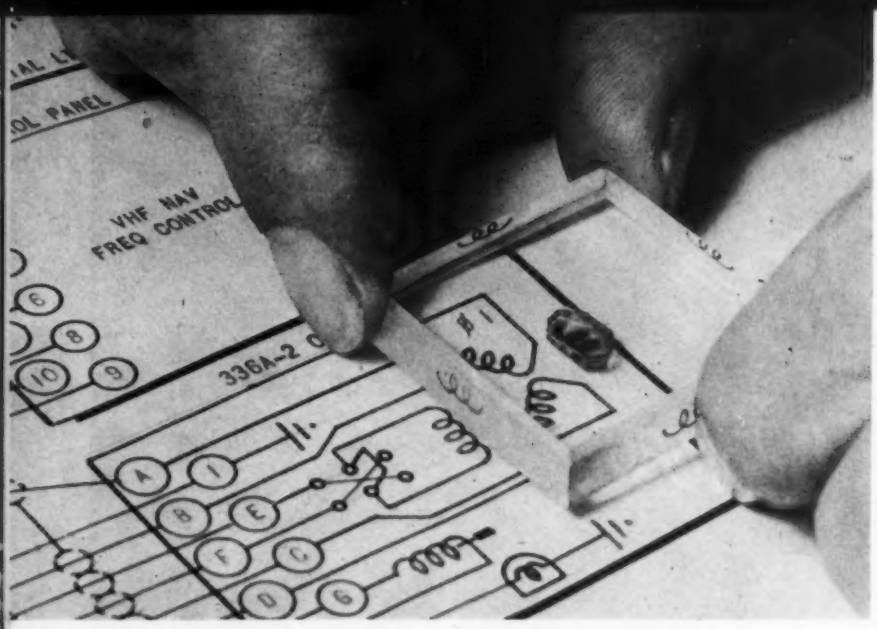
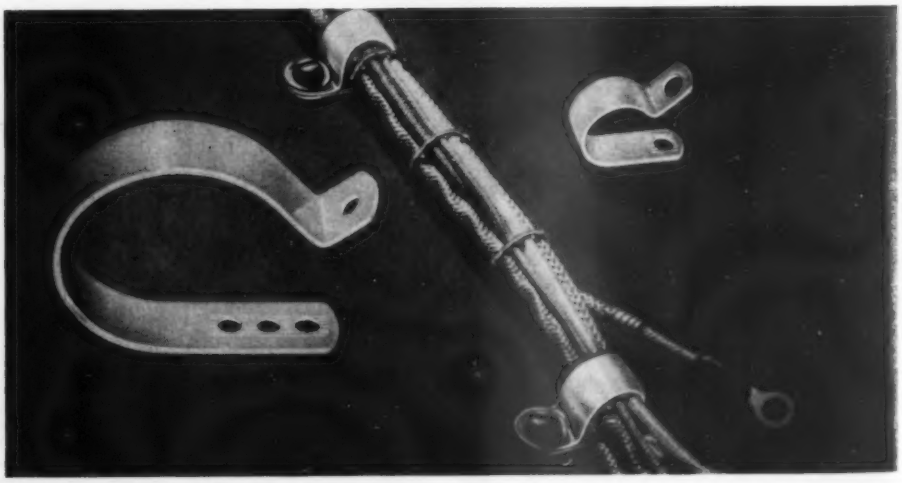
PIONEER BUILDERS OF NIGHT AND ALL WEATHER FIGHTERS

8A8



Transparent symbol stamps for the electronic-electrical engineering draftsman which are said to offer a 50% saving in drafting time have been announced by the John Griffin Company. Available in kit form containing 27 symbols of optional selection from a prepared group of 105 electronic or electrical presentations, the new stamps print any symbol, regardless of complexity, in three seconds. Stamp pads and opaque ink are included with the kit. Address: John Griffin Company, 2157 James Ave., St. Paul 5, Minn.

Beverage jug, called the Thermal Canister LC-19, weighs eleven pounds and features a disposable spigot, according to the manufacturer, Allied Industries, Inc. The unit, which is designed to fit existing galley spacing, has a dent-proof outer shell of Fiberglas and an inner can of 18-8 stainless steel. A sterile gum tube wrapped in cellophane is the disposable part of the spigot, thus eliminating spigot cleaning. Address: Allied Industries, Inc., 1519 McGee, Kansas City 6, Mo.



Nylon cable clamps, called Nyloclips, available in eleven standard diameter sizes, have been introduced by the Burndy Engineering Company. Of light weight and flexible construction, the clamps are said to be unaffected by oils, gasoline, alcohol, or hydraulic fluids, including the non-inflammable types. Address: Burndy Engineering Company, Norwalk, Conn.

New Products

Electrocleaner

An electrocleaner designed primarily to condition zinc die castings before plating has been placed on the market by the Oakite Products, Inc. Called Composition No. 95, advantages claimed by the manufacturer include fewer rejects provided by its ability to remove surface films, disturbed metal, and the last traces of soil. Controlled uniform action on the compound avoids plating shadows caused by deep etching of harsh cleaners; hydrogen gas formations that raise blisters when castings are heated after electroplating are also avoided.

Address: **Oakite Products, Inc.**, 157 Rector St., New York 6, N. Y.

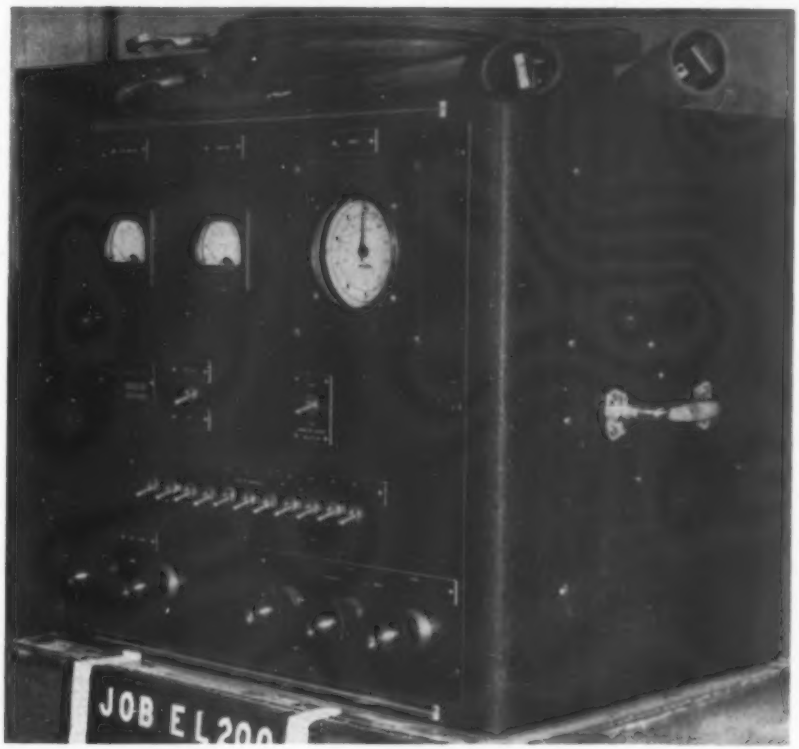
Temperature Test

A high and low temperature test chamber for production line testing of motors, relays, switches, condensers, transformers, etc., has been introduced by the Webber Appliance Co.

Providing a test range from + 250° F. to — 100° F. the Webber Test Unit, as it is called, includes a temperature controller said to be accurate to plus or minus 1½°. Humidity is regulated by a wet-and-dry-bulb controller which provides 95% relative humidity at temperatures between 75° F. and 95° F. Vacuum equipment can be added to simulate high altitude conditions.

Dimensions of the test chamber are 20″ x 20″ x 20″ providing a 4½ cubic foot test space. Outside dimensions of the cabinet are 60″ x 45″ x 74″, length, width, and height respectively. Model number is A-4½-100 FHH.

Address: **Webber Appliance Co., Industrial Freezer Division**, 2740 Madison Ave,. Indianapolis 3, Indiana.

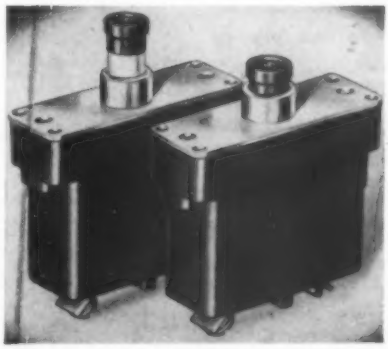


Circuit Breaker Tester

A portable circuit breaker tester designated the Model CBT-1 has been developed by Greer Hydraulics, Inc., for checking the operation of circuit breakers while installed in aircraft.

Usable for circuit breakers rated up to 150 amperes-28 volt d-c, the new test equipment relates elapsed time it takes the breaker to trip by means of a 1,000-second manual reset timer mounted on the tester. Also included are a d-c voltmeter, a dual scale 0-30 and 0-150 ampere d-c ammeter, a 30-ampere and 150-ampere negative input terminal port, a d-c ammeter range selector switch and eleven test loading switches.

Address: **Greer Hydraulics, Inc.**, 454 Eighteenth St., Brooklyn, N. Y.



Circuit Breaker

A new thermal type, push-pull, trip-free circuit breaker especially designed to meet the needs of heavy aircraft electrical systems has been added to the Spencer thermostat line.

Designated the D6752 circuit breaker, the new unit has a magnetic assist which provides instantaneous tripping action on heavy overloads and, combined with a wide gap in the breaking contacts, assures high rupturing capacity. Once opened it remains open until manually reset by the push button. Under dangerous overloads the contacts can not be held closed even by fully depressing the push button. Weighing less than 2.5 ounces, the D6752 unit is available in ratings from 5-50 amperes.

Address: **Spencer Thermostat Div., Metals & Controls Corp.**, Attleboro, Mass.

here's "HOW"...

Small unprepared fields – even in combat zones, present few difficulties to Chase Assault Transports. Heavy duty howitzers, with crews and prime movers are delivered to front line areas ***by landing*** ready for immediate employment – no time lost due to unpacking or reassembly.

The Chase Assault Aircraft is the only plane designed for this specific function and has more than fulfilled the exacting requirements of military necessity.

Chase AIRCRAFT CO., Inc.
WEST TRENTON, NEW JERSEY
STROUKOFF AVITRUC

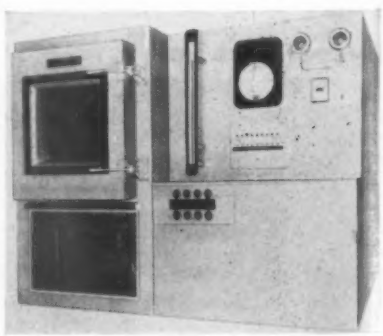
Arc Welders

Three a-c arc welders of new design for heavy duty industrial work and maintenance operations have been introduced by Trindl Products, Ltd. Designated models 200A, 300A, and 400A, the new welders feature an eye-level control panel.

The model 200A operates from either a 110- or 220-volt power supply and has a heat range of from 20 to 200 amps. It handles rods up to 3/16" and work up to 1¾" thick.

Models 300A and 400A are for heavier construction, use 220/440-volt lines and provide heat ranges from 30 to 300 amps and 30 to 400 amps respectively.

Address: **Trindl Products, Ltd.,** 17 East 23rd Street, Chicago, Ill.

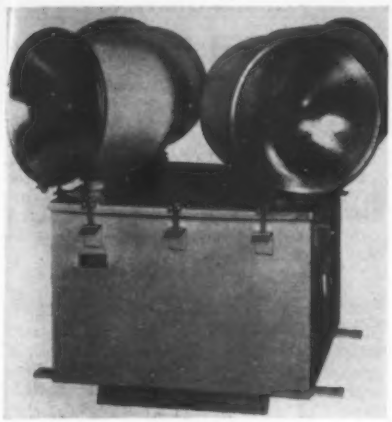


Altitude Chamber

An altitude test chamber called the TenneyZphere, which is intended to meet the majority of altitude test requirements, has been introduced.

Available in 10 sizes ranging from 18" x 22" x 18" to 48" x 60" x 96", width, height and depth respectively, the chambers simulate altitude from sea level to approximately 80,000 feet. Temperatures can be varied from -100° F. to 200° F. and relative humidities from 20% to 95%.

Address: **Tenney Engineering, Inc.,** 26 Avenue B., Newark 5, N. J.



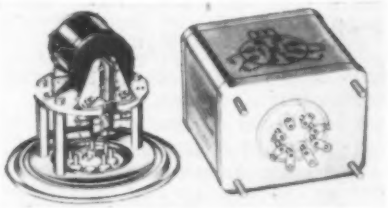
Warning Lights

Flasher warning lights in a new series designed for use on airways and airports have been announced by Light Products, Inc. Called Neo-Flasher models 6-100 and 7-100, both are said to operate on two Power Pak dry cell batteries for approximately nine months when cycled to operate at 90 flashes per minute, and when automatic provisions are included for night operation only.

The model 6-100 is intended for visibility up to 20 miles in clear weather and can be obtained with either one, two, three, or four light heads. The model 7-100 is visible for approximately five miles in clear weather and is primarily an obstruction light.

Both models offer complete weatherproofing, featuring one inch of insulation on all case interior surfaces.

Address: **Light Products, Inc.,** 407 Commercial Center, Beverly Hills, Calif.



Inverter

A synchronous inverter designed for precision use in aircraft electronic, electrical, and servo systems has been introduced by the Bristol Company. Operable at any frequency from zero to 3,500 cycles, the new inverter is said to be unaffected by shock and vibration.

Called the Bristol Syncroverter Switch, it is capable of converting low power d-c signals to alternating voltages that can be amplified and applied in various means. Hermetically sealed against dust and corrosion, inverter errors due to thermal emf are eliminated by use of two single-pole, double-throw contacts.

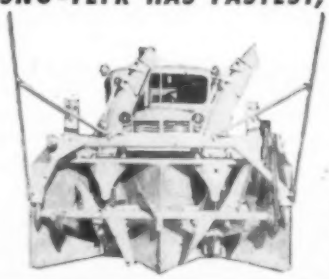
Address: **The Bristol Company,** Waterbury 20, Conn.

New BROS Airport Rotary casts snow high or low in any direction!

The speed and control of this new Bros Sno-Flyr Rotary are amazing to see! In shallow snow, it can race like a blade plow, hitting speeds up to 25 m.p.h. . . . and it goes through deeper, heavier snow faster than any other rotary. By separate hydraulic cab controls, the operator can aim the new exclusive casting chutes in any direction, individually or together. And for the greatest possible positive control, he can adjust height of snow stream arc in a split second with the exclusive Bros segmented capping devices . . . just like crooking your finger!

He can spot-cast up to 150 feet away, casting high with favorable winds or casting low into the wind. He can cast away from buildings, parked planes or equipment. No other rotary offers snow stream control like this!

SNO-FLYR HAS FASTEST, MOST POWERFUL BASIC DESIGN



In front, this rugged rotary has a rotating feeding rake which chops vertically at drifts, sending the snow back into two dual-bladed rotor discs which whip it straight up and out the casting chutes. This single direction snow travel is shorter and more efficient than that of any other rotary.

Special gathering wings increase plowing width from 9' to 14'. They can be lifted individually to clear obstructions, to clear spaces between landing lights and to clear tops of ground level lights. These wings fold back out of the way when not in use. A new adjustable loading chute fills trucks speedily on either side of rotary, wherever truck removal is required.

GET LATEST ROTARY CATALOG

This Bros Sno-Flyr catalog is packed with pictures and detailed explanations of Sno-Flyr performance. It's a must for any engineer interested in the most efficient snow removal at the lowest cost. Write for your free copy today!

WM. BROS BOILER & MFG. CO.

ROAD MACHINERY DIVISION • MINNEAPOLIS 14, MINNESOTA

SNO-FLYR models available for 4-wheel-drive trucks, graders and crawler tractors. Also units for railroad and high altitude work.

TWA Flight Engineer Strike Called Off

A strike call against Trans World Airlines' domestic and international operations by about 350 members of the AFL-Flight Engineers International Association was canceled after the company made a new wage offer and the local's membership took it under consideration.

TWA flight engineers, whose current scale is $420-625 a month, had decided a 10% wage boost recommended by a Presidential fact-finding board was not enough.

USAF Grounds F-89's

The Air Force has grounded the Northrup F-89 twin-jet, all-weather interceptor pending investigation of the causes of a series of recent accidents. All models are grounded, except those on alert in air defense missions. There have been five crashes in the past few weeks, the most spectacular of which was at the International Air Exposition in Detroit in full view of the spectators. Other accidents occurred near Paine Field, Wash.; Ontario, Calif.; Moline, Ill.; and Presque Isle, Me.

NWA Halts TCP Fuel Tests on Boeing 377's

An excessive build-up of lead phosphate deposits in the exhaust system and turbo blowers on Northwest Airlines' fleet of Boeing 377 aircraft stopped tests of Shell TCP fuel additive after two weeks of operation.

The Shell Oil company is currently studying the problem which gave a sufficient deposit in the nozzle box and turbine buckets to reduce the turbo's efficiency enough to cancel the trials.

Fuel Capacity of Boeing B-47 Revealed by USAF

First official indication of the fuel capacity of the Boeing B-47 jet bomber came from Air Force Under Secretary Roswell L. Gilpatric at a Seattle Chamber of Commerce luncheon honoring Boeing Airplane Co. The fuel in the B-47, Gilpatric said, weighs more than a fully-loaded World War II Boeing B-17. Combat gross of the B-17 ran between 54-60,000 pounds, equivalent in weight to about 9-10,000 gallons of JP-4 jet fuel, an extraordinary fuel load for a plane classified as a medium bomber.

The Air Force, Gilpatric said, is "putting more eggs in the B-47 basket than any other type of airplane in current production."

War Risk Insurance Approved by Truman

Aviation war risk insurance for international airlines is to be made available under legislation enacted by the 82nd Congress following presidential approval of a recommendation by the Secretary of Commerce that it be provided. The insurance program will embrace U. S. international carriers and those foreign carriers engaged in operations deemed by the Secretary to be in the interest of national defense or the national economy of the U. S.

However, the program will not be put into effect immediately because the Commerce Department does not have necessary funds, and will have to request them from Congress. In recommending the program to the President, Commerce Secretary Charles Sawyer said that, on the basis of information which has been received from the major aviation insurance underwriting groups and the eligible U. S. international carriers, he found that aviation war risk insurance cannot be obtained on reasonable terms and conditions from companies authorized to do insurance business in a state of the U. S. In such circumstances, Public Law 27 permits establishing the program.

When final details of the program are worked out, information on standard forms of underwriting agency agreements, applications, binders, and policies, together with applicable rules, regulations, and instructions, will be published in the Federal Register.

No More Super Connies Until Next Year

Lockheed Aircraft Corp., which filled Eastern Air Lines' order for 14 L-1049 Super Constellations and TWA's request for 10 during the third quarter, is not planning to deliver any more commercial models of the plane before early next year.

The company's interim financial report indicated no commercical deliveries would be made during the last three months of 1952 to enable it to deliver some military versions of the plane. The Navy is to get the WV-2 radar command plane and the R7V-1 transport, as well as the turboprop R7V-2, while the USAF is to obtain RC-121C's, high-altitude radar craft.

First TB-50H for USAF

Boeing Airplane Co. has delivered the first of a new model of the B-50 bomber to the Air Force. Designated TB-50H, it is a training version with complete equipment for crew training in operation of the intricate "K" bombing-navigation system. It will be the first four-engine bomber equipped for specialized training.

Technical Literature

AVIATION LAMPS: Prepared by the Westinghouse Lamp Division of Westinghouse Electric Corp., Pittsburgh, Pa., a new catalog on lighting equipment for military and commercial aviation incorporates a cross-index of company's lamp identifications using latest military stock numbers.

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AIRBORNE ELECTRONIC EQUIPMENT: New two-color, eight-page brochure features typical examples of specialty transformers for airborne electronic equipment and outlines applications of transformers. Prepared by Goslin Electric & Manufacturing Co., 2121 W. Olive St., Burbank, Calif.

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SWING CHECK VALVES: New catalog sheets, series 111A10-15, describe swing check valve models for fuel, air, hydraulic, and engine oil system service. The sheets were compiled by Parker Appliance Co., 17325 Euclid Ave., Cleveland 12, O.

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PUSH-PULL CONTROL SYSTEMS: Simmonds Aerocessories, Inc., White Plains Rd., Tarrytown, N. Y., has just published a 12-page manual for design engineers covering all phases of the Simmonds precision push-pull control.

•

COMBUSTION ENGINEERING: "Heat in Harness" is a beautifully illustrated 40-page booklet which details the various aspects of combustion engineering carried out by the Surface Combustion Corp., Toledo 1, O.

•

REMOTE MEASUREMENT AND AUTOMATIC DATA CONVERSION: Research, development, and consultation services of ASCOP comprise subject matter of 10-page booklet issued by Applied Science Corp. of Princeton, P. O. Box 44, Princeton, N. J. A representative multi-channel data system is also included.

•

BALL BEARINGS: Problems of lubrication and maintenance of ball bearings are discussed in an eight-page folder produced by the Fafnir Bearing Co., New Britain, Conn.

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ENGINEERING CONSULTATION: "All Under One Roof" explains the technical services offered by Sam Tour & Co., Inc., consulting and development engineers, located at 44 Trinity Pl., New York 6, N. Y.

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ANTI-SKID BRAKES: Hydro-Aire, Inc., of Burbank, Calif., has released an 18-page catalog which describes Hytrol, an anti-skid braking system developed for airplanes.

•

ADJUSTABLE DRILL JIG: New data sheet prepared by Mathewson Machine Works, Inc., 2 Hancock St., Quincy 71, Mass., details the functions of its adjustable drill jig.

Airline Commentary

By Eric Bramley

NOTE to American Airlines: On 43rd Street, just off Times Square in New York, is the Aircoach Terminal, a rather plush non-scheduled airline ticketing organization, complete with window displays. In one of the side windows, Mexico is featured. Part of the display consists of three colored pictures showing Mexican scenes. We thought we'd seen them before. Sure enough—two of them carry American Airlines' copyright. And across the top of one of the photos is the caption, "Whenever you go—take your Mexican holiday by Flagship."

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A suggestion on maps: We're wholeheartedly in favor of having maps available aboard airplanes for the use of passengers. But we wonder if it's necessary to prepare elaborate ones which run into a sizeable chunk of money. We were interested to note during our tour of Alaska that almost all of the Alaskan airlines carry extra copies of the regulation flight charts. If a passenger has an inquiry about the terrain, he's furnished a copy of the appropriate chart.

They don't carry enough for everyone, but then everyone isn't interested in following a map. The flight charts show altitudes, airways, etc., and are very easy to follow. And we think that the passenger gets an extra kick out of being permitted to use a map that's the same as the one used in the cockpit. We'll bet some of the airlines in the U. S. could adopt this practice and save money.

•

Here's one that may well be an industry record. **Max Healey,** vice president of Aerovias Nacionales de Colombia (AVIANCA) sends us a copy of his company's manifest for the flight of September 9 from Bogota, Colombia, to Madrid, Spain. The Jaramillo family was aboard—all sixteen (16) of them—including Gloria, Matilde, Jorge, Maria Teresa, Ofelia, Jaime, Jose, Guillermo, Carlos, Gabriel, Clarita, Luz, Hernan, Beatriz, Mary, and Alfonso. Incidentally, the Angel family took up six other seats. Anyway, we're wondering whether any airline has ever carried more than 16 members of one family. Anyone know the answer?

•

This hasn't received much publicity, but Ralph Damon, president of TWA, is a darned good salesman. Last year, he took an extended business trip through Ethiopia and Kenya, and became very enthusiastic about the country. He showed his friends motion pictures he had taken of lions, zebras, giraffes, etc. He then got the idea of organizing a "camera safari" and personally sold 18 of his friends. They, and Damon, are now abroad on a 37-day trip (via TWA and at regular rates) to the same area, and Damon has added his bit to the sales quota.

•

Amusing sidelight on Robinson Airlines' change of name to Mohawk Airlines. Pilot Bob Jenkins points out that towers are going to have to get a new abbreviation when calling the company's planes on the radio. "In the days just past," he says, "we used to be known to the various towers as 'Robbie 10 or Robbie 37,' etc. The other day the tower at Buffalo came out with what may be the new pattern: 'Moe 8 from Buf tower, cleared for take-off.' "

•

It takes letters and cards a long time to go through the mail, but isn't 13½ years stretching things a little? We have a promotional postcard that American Airlines issued in 1939. Shows a picture of a big DC-3, and the message on the back reads: "Beg, borrow or steal a copy of the February issue of Fortune Magazine and read the inside story of why American Airlines Inc. is America's leading airline." This was mailed in Cleveland on January 31, 1939, addressed (properly) to a friend of ours in Pittsburgh. He received it July 29, 1952. Clear the ways, MacDuff, the mail must go through!

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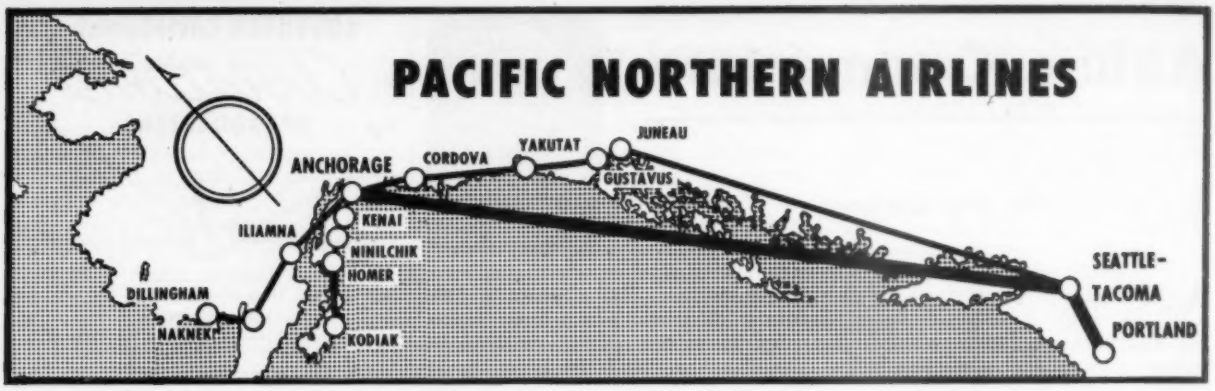


Pacific Northern: Up from the Bush Leagues

U. S.-Alaskan carrier works hard and fast while waiting for certificate renewal and new aircraft.

By Eric Bramley

One of a series of articles by American Aviation's executive editor, recently returned from Alaska.

Pacific Northern Airlines has a built-in advantage over some of the other airlines serving Alaska: its routes are along the coastal area where most of the population is located, and it has a directional balance of traffic.

Woodley

With two DC-4's, PNA maintains a daily service over the 1,558-mile route between Portland, Seattle, and Anchorage, Alaska, and often manages to squeeze in a dozen or more extra round-trips in the course of a month.

With four DC-3's, it flies two daily round trips on the 633-mile route from Anchorage to Juneau, the capital, serving Cordova and Yakutat en route; one daily flight from Anchorage to Naknek, another 290 miles down into the Bristol Bay area, and two daily trips Anchorage-Kenai-Homer-Kodiak 265 miles.

With one Lockheed 12, it furnishes twice-daily service Anchorage-Kenai-Ninilchik-Homer, 128 miles. Fields on this route are too small for DC-3's.

PNA has gained the reputation of furnishing one of the best services in Alaska. It's probably the nearest thing to a Stateside operation in the Territory. For friendliness, you can't beat it. Every pilot, co-pilot and stewardess with whom I rode was a public relations representative for the company. The same applied to the other employes I met.

PNA has plans to buy some additional four-engine equipment this year. With more airplanes, it can become an even bigger factor in the U. S.-Alaska and intra-Alaska airline picture. It can, for example, open the Seattle-Juneau route, for which it has a certificate but which it hasn't been able to operate because its DC-4's have been too busy.

Revenues Up

Even with the present aircraft, PNA this year will take in considerably more money than in 1951. Last year, with the Seattle-Anchorage route open only three months (service was started October 1, 1951) the company's revenue was $2,342,688. Its 1951 net profit on intra-Alaska service was $36,061. Its loss on the U. S.-Alaska route was $53,965—a loss that could be expected on any new service started to Alaska in the winter season.

In 1951, PNA carried 34,781 passengers intra-Alaska and 2,436 U. S.-Alaska, a total of 37,217. This year's business will be considerably better (22,730 were carried in the first six months). Cargo ton-miles should be 300% better than last year's 591,920, while mail ton-miles will be up 250% over the 218,157 of 1951.

Much of the increase can be attributed to the aggressive selling of Harold Olsen's traffic and sales department. Olsen, well known in U. S. airline circles, is now vice president-traffic and sales. He joined PNA in 1947 after six years with American Airlines and five years with Capital.

Art Woodley, president and general manager, a graduate of Army flying school and a pioneer bush pilot, started his Alaskan bush operation in 1932. It was a one-airplane (Bellanca on pontoons), one-man show, with Woodley as "pilot, mechanic, traffic manager, and dispatcher." He operated between Anchorage and Kodiak, plus a number of other points, and in 1933 was able to acquire some Travelairs.

By 1935, Woodley Airways was operating quasi-scheduled service from Anchorage to Kodiak, Bristol Bay, and the Kuskokwim area, and in 1942 it received a "grandfather" certificate for Anchorage-Bristol Bay. This operation was with tri-motor Stinsons. The company was refused an Anchorage-Juneau certificate, but flew the route under a temporary exemption order.

In 1943, Woodley plunked out $75,000 cash for a used Lockheed Electra and, utilizing newly installed airway facilities, started instrument flying in Alaska on the route to Juneau. The next year, he bought two Boeing 247's from the Army.

Woodley kept pushing his case for an Anchorage-Juneau route as a stepping stone to Seattle, convinced that a U. S. terminal was vital to the success of his company. In 1944, he was awarded a Kodiak certificate, and two years later came his long-sought Juneau permit.

In 1946, the same year the company was incorporated as Pacific Northern Airlines, he bought three new DC-3's from Douglas Aircraft Co. His "battle for Seattle" was won in 1951, and he opened service on the route last October. As previously mentioned, he was also certificated for Seattle-Juneau, but lack of equipment has delayed the opening of service. The U. S.-Alaska permits expire late next year.

Woodley is one of the Alaskan airline executives who believes that mainline flying and bush operations don't mix. He is of the opinion that to engage in both types of flying would involve too many different types of planes, parts, etc., and that overhaul and maintenance costs would be high. For this reason, he has "farmed out" his certificated bush mail routes in the Bristol Bay area to a small carrier, Bristol Bay Airlines. Technically, PNA leases BBA planes to perform the service, but it's a BBA operation throughout.

Woodley's contention that a U. S. terminal was needed seems to have been borne out—70% of the business now carried by PNA in Alaska originates in the U. S.

A lot of this business is closely tied to the fishing industry in the summertime. The airlines have done great things for the commercial fishing industry, and that industry in turn has meant very substantial revenue to the airlines. Commercial fishermen and cannery workers start north from the U. S. in May and June, and return in July and August. Formerly they lost time traveling by boat. Now they get to Anchorage in 7½ hours. PNA carried over 2,000 of them this summer.

Peak Traffic

These peak periods drive the airlines crazy—particularly PNA and its two DC-4's. Everyone wants to move at once. In addition to its regular daily roundtrip Seattle-Juneau, PNA works in as many extra sections and charter flights as it can. DC-4 utilization sometimes tops 13 hours a day, which compares very favorably with U. S. operators.

Some strange things affect the scheduling of these extra trips:

• **A cannery worker's pay** starts from the time he leaves Seattle. Therefore, flights are sometimes dispatched a few minutes after midnight, in order to save a day's pay.

• **The tide at Naknek,** 1,500 miles away, dictates departures. There's no use setting a load of fishermen down at Naknek when the tide's out, because it's impossible to take them across the bay in boats to their headquarters. Thus, flights leave Seattle timed to arrive when the tide's in.

PNA and its predecessor, Woodley Airways, have never had a passenger fatality in 20 years of flying, despite the terrain and the weather along the routes. In Alaska, the company completes 95% to 98% of its trips. On Seattle-Anchorage, it has yet to cancel a schedule.

PNA flies Seattle-Anchorage either over the Gulf of Alaska or using Amber Airway 1, just off the coast. On a clear day, the latter route is one of the most scenic to be found anywhere. The $75 fare, incidentally, is a bargain—it averages 5.19c a mile (PNA's intra-Alaskan fare averages 9.5c, also a bargain in view of high costs in Alaska). Cargo rate on the route is 21c a ton-mile, 23c for perishables.

THREE PNA OFFICIALS are shown at King Salmon. Left to right, Harold Olsen, vice president-traffic and sales; Felix Aubuchon, superintendent of flight operations; Bob Kinsey, assistant to the president. Kinsey was formerly Alaskan director of CAB.

The DC-4's are equipped with 50 comfortable Payloader seats, made by Flight Equipment and Engineering Corp., Miami. The seats can be folded to permit carriage of cargo in the cabin.

DC-4 maintenance is performed at Seattle's Boeing Field (operations have not yet been shifted to Seattle-Tacoma International Airport because of lack of hangar facilities). Engine overhaul is farmed out to Pacific Airmotive, United Air Lines, and others. The Seattle base is supervised by J. H. ("Hal") Foster, superintendent of maintenance, who has been in aviation 22 years with such companies as Fokker, Stinson, Western Air Express, American Airlines, and Northwest Airlines.

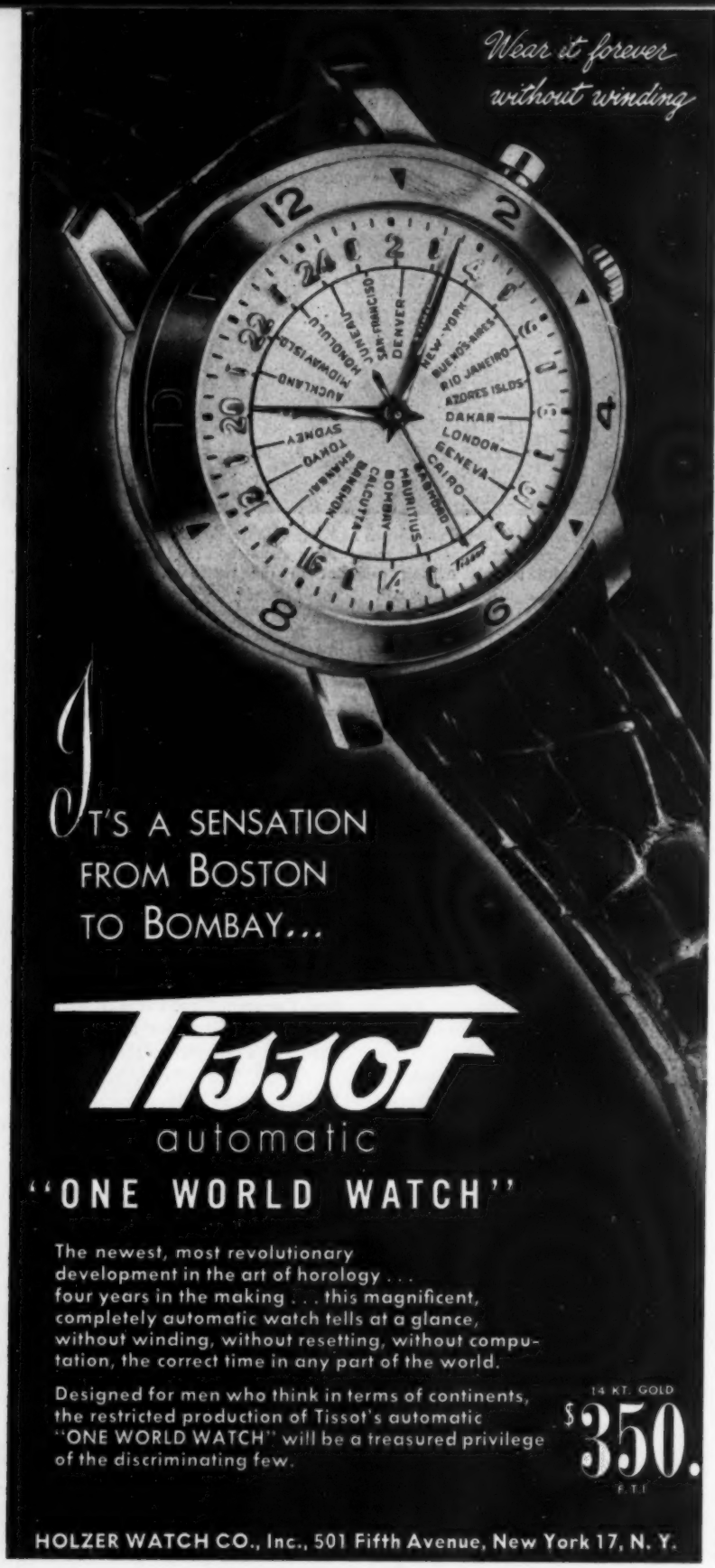
All DC-3 maintenance and overhaul is performed at Anchorage International Airport in a hangar shared with Alaska Airlines and Northern Consolidated Airlines. C. A. DuRose, vice president-operations, who was with Northwest Airlines for 13 years before joining PNA in 1946, has his headquarters at the field (the company's general offices are in Seattle).

The DC-4's daily utilization, which exceeds 13 hours in summer, will average out about nine hours year-round. DC-3's will hit nine-10 hours in summer, six hours year-round.

PNA now has 350 employes, including 42 pilots and co-pilots. The flight crews, which include men from such outfits as wartime Consairways, Pan American, Douglas, and Air Transport Command, are based in Seattle and Anchorage. They are members of the Air Line Pilots Association.

PNA, like other Alaskan carriers, has been faced with a number of problems. One was lack of facilities at the new Anchorage airport, which is owned and operated by CAA. The company built its own $100,000 passenger terminal, an attractive one-story structure, complete with ticket counter, waiting room, offices, Link trainer room, dis-

NEW $100,000 passenger terminal built by Pacific Northern at Anchorage.



patch office, etc. It's one of the most attractive airline buildings in the Territory.

The company's passenger service is uniformly good. For example, two flights leave Anchorage for Juneau at 7 a.m. and 7:15 a.m., one non-stop, one via intermediates. Passengers are served sweet rolls and coffee in the Anchorage terminal before departure. During the 4½-hour flight, they're offered several different types of fruit juice and coffee. Then they're served soup, sandwiches, a beverage, and dessert.

The flight crews are excellent passenger service representatives. I noticed that Capt. Frank Hansen came back into the cabin and personally explained to several passengers that it was going to be necessary to overfly Cordova because of weather. Stewardesses are personable and capable.

The Anchorage-Juneau route, incidentally is flown right along the coast, over the Gulf of Alaska. On your left, flying southeast, are such "rockpiles" as Mt. Saint Elias (18,008 feet), Mt. Fairweather (15,300 feet), Mt. Crillon (12,725 feet), and "smaller" ones between 7,000 and 10,000 feet. It's advisable to know where you're going.

Hidden Approach

An approach to Juneau, hidden back in the hills, is also interesting. You fly down the coast to the intersection of the Gustavus range, make a sharp left turn and fly up Cross Sound between the hills. If you have 1,000 foot ceiling and two miles visibility when you're over Gustavus (which has a modern airport) and Juneau also has 1,000 and two, you can proceed. The 52-mile run from Gustavus to Juneau is circuituous, requiring a contact operation.

PNA has flown the route with perfect safety. In the old days, Art Woodley used to fly in there with his Electra.

To its advantages of serving populated areas and its directional balance of traffic, PNA is adding another asset—the development of year-round industries in southeast Alaska, around Juneau and Ketchikan. A big plywood factory is to be put in operation at Juneau, a pulp mill at Ketchikan, and the Aluminum Company of America has plans for a $400 million hydroelectric plant near Skagway, which will funnel traffic through Juneau.

Woodley is also among those who believe that a large amount of future business will come from increased tourist traffic, as more accommodations become available in the Territory.

PNA has come a long way out of the bush league into the big league. It has the advantages necessary to remain one of the Territory's top airlines.

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Eastern Merger Favored by CAI Owners

Colonial Airlines' stockholders favored sale of the company's assets to Eastern Air Lines by an overwhelming majority at a special meeting in Wilmington, Delaware. With 83% of the company's 515,600 outstanding shares voting, 430,246 shares favored the Eastern deal with only 25 opposing.

Colonial's management accepted Eastern's offer of two shares of its stock for three shares of Colonial when solicited bids were weighed during the summer. Offers of National Airlines and Northeast Airlines were rejected by management at that time. Last spring, a National-Colonial merger agreement, backed by Colonial's management, was nevertheless defeated in a stockholders vote.

Since that time, the Eastern-Colonial agreement has been filed with CAB for approval and the Board, on its own initiative, has instituted an investigation to determine public interest aspects of a possible National-Colonial merger. Hearings begin October 27 in Washington.

Delta-C&S Combine Urged by CAB Bureau

The proposed Delta-Chicago & Southern merger got a big boost late last month when CAB's air operations bureau recommended approval by the full Board. Stating its position for the first time, the bureau saw the proposed merged system as being better able to survive adverse economic developments than either of the lines individually.

In briefs to Examiner William F. Cusick, opposition to the merger was limited to Eastern, among the airlines, and the City of Memphis, among the intervenors. Pan American and National, however, felt transfer of C&S's Caribbean route to the merged system would not be in the public interest.

Counsel for the CAB bureau, Leslie G. Donahue, saw the merger as eliminating C&S's domestic subsidy need and lessening the carrier's international requirements. Further, he said the integrated operations of the two systems "will afford the opportunity for better utilization of facilities, equipment and personnel as well as an improved service to the traveling public."

Next step in the case is an examiner's report to be followed by briefs to the Board and oral argument.

Actual Control of Four Non-skeds Questioned

Implications that presidents of four prominent non-scheduled airlines occupy not-too-prominent roles in their airlines' activities were evident in testimony of Amos E. Heacock at hearings in the Large Irregular Air Carrier Investigation. Head of the Air Coach Transport Association, Heacock could not identify the "presidents" as such when confronted with their names by American Airlines' attorney Clifton J. Stratton, Jr.

The four men are Edward McAndrews, Twentieth Century; Harold J. Feldman, Trans National; Maury Swidler, Trans American; and John E. Markley, Jr., Caribbean American. Their airlines are members of Heacock's association.

The association head said the airlines named have been represented at policy meetings of ACTA by Stanley Weiss, formerly with Standard Airlines, Don Rich, and J. B. Lewin. Both Weiss and Lewin are affiliated with the so-called "North American group" which seeks to merge various airlines and enterprises into one operating airline company.

CAB Calendar

Oct. 16—Hearing in Reduced Charter Rates Proceeding. Flying Tiger Line and Slick Airways. Washington. Docket 5605.

Oct. 16—Oral argument before the Board in Caribbean Atlantic Certificate Renewal Case. Washington. Docket 4979.

Oct. 20—Hearing in Trans-Atlantic Final Mail Rate Case (Pan American and TWA). Washington. Docket 1706 et al.

Oct. 27—Hearing on Colonial-Eastern Merger Agreement and Colonial-National Merger Investigation. Washington. Docket 5569 & 5666.

Nov. 12—Hearing in Pioneer Air Lines Lubbock-Albuquerque Renewal Case. Washington. Docket 5500.

Recent CAB Decisions

• **Transocean Air Lines** granted exemption for six DC-6 flights from Oakland to Tokyo under contract with National Shipping Authority transporting replacement crews to Tokyo to man ocean vessels of NSA and to return replaced crews to U. S.

• **Trans World Airlines** authorized to suspend service temporarily at Grand Canyon, Ariz., from November 1, 1952, to April 30, 1953.

As of Now . . .

The question of whether the Post Office Department's proposal for establishment of an earnings equalization reserve will be tried in the **BRANIFF AIRWAYS FINAL MAIL RATE CASE** is still being argued and the rate case delayed indefinitely. Hearings were to have been held last month. PO plan is to put airline earnings above a certain figure into a reserve fund to meet future needs. Main fight now centers around Braniff's opposition to use of its rate case for determining legality and feasibility of the PO plan which has industry-wide implications.

The biggest international mail rate proceeding in CAB history, the **TRANS-ATLANTIC FINAL MAIL RATE CASE,** has been set for hearings on October 20 in Washington. It involves establishment of final rates for trans-Atlantic operations of Pan American and TWA and for the closing operations of American Overseas Airlines, now part of the Pan Am system.

CAB's smoldering jurisdictional battle with the California Public Utilities Commission may explode during or as a result of hearings in the **CALIFORNIA COACH FARES INVESTIGATION,** which starts before CAB on December 15. Case centers around California Central Airlines' protest against reluctance of Western, United, and TWA to increase Los Angeles-San Francisco coach fare from $11.70 to $13.50. California PUC has approved Cal Central's $13.50 fare and itself is investigating the lower fare of the interstate carriers which CAB up to now has approved.

The **COLONIAL-EASTERN, COLONIAL-NATIONAL MERGER CASE** will go to hearings on October 27 instead of October 23 as originally planned. Early part of the hearings will be devoted to witnesses of numerous civic intervenors with airline presentations likely to begin in the first week of November.

With both National and Eastern striving to absorb Colonial, the case may be the bitterest fight yet between the perennial east coast competitors. Final CAB decision by early spring, 1953, is probable under current schedule.

The fate of **LAKE CENTRAL AIRLINES,** at least under its current management, should be decided by CAB shortly. All procedural steps have been completed and the final record is now before the Board. In addition to renewal of the line's local service certificate, the question of fitness of current management and the local airline needs of four mid-west states are involved. Also in the background is Wisconsin Central's proposal to buy out controlling interest in Lake Central. . . . W. V. H.

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People

ADMINISTRATIVE

William J. Eiden, assistant treasurer of Northwest Airlines, has been appointed an assistant to the president and will be responsible for budget and cost control. **A. D. Piepras,** executive assistant to the regional vice president of Northwest's Orient Region, will take over the post of assistant treasurer.

Eiden

Captain A. C. Olney, USN Ret. has joined Temco Aircraft Corp. as special assistant to the president.

Boyce Hill has been named assistant to the president of Gladden Products Corp. In his new post he will be primarily concerned with procurement and production.

W. C. Dalleck, an economic analyst for United Air Lines since 1948, has been promoted to staff supt.-economic controls administration in charge of the company's newly created quality control service.

Clark C. Frame appointed to the new position of director labor relations for Westinghouse Electric Corp. from manager of industrial relations at the East Pittsburgh division. **Robert W. Gray** will succeed Frame at East Pittsburgh.

A. Dale Herman, formerly with Vickers, Inc., has been named to the post of vice president and general manager of Marman Products Co.

Robert A. McMillan has been appointed general manager of the Dept. of Airports of the City of Los Angeles, succeeding **Admiral J. W. Reeves, Jr.,** USN Ret., who resigned to return to private life.

W. Raymond Hart, formerly vice president and treasurer of Grand Central Aircraft Co., has been advanced to vice president and assistant general manager of the company.

OPERATIONS-MAINTENANCE

W. W. Rutledge has been named to the newly created post of operations manager of Boeing Airplane Company's manufacturing division at Wichita. **T. C. Pitts,** formerly factory general superintendent, has been made factory manager replacing **A. W. Schupp,** who resigned to join Paramount Products, Inc., as president and general manager.

Alex Petroff has been made director of research in charge of all research work for Cessna Aircraft Co.

William T. Maxfield has resigned as director of maintenance and engineering of Braniff Airways.

American Airlines has recently promoted six of its operations personnel as follows:

E. J. Rogers became director of operations of American Airlines de Mexico, succeeding **T. E. Conley,** who became manager of operations at Dallas. **T. G. Rea** transferred from Dallas to Fort Worth in the same capacity, and **Jack Kearns** was transferred from Dallas to become manager of operations at Newark. **R. H. Scruggs,** formerly assistant to the vice president-operations, was appointed assistant manager of operations at La Guardia Airport; and **George W. Shiles,** formerly assistant to operations manager **T. L. Boyd,** succeeded Scruggs.

R. F. Moore has been named maintenance manager of Pan American World Airways, Atlantic Division. He succeeds **G. William Taylor,** resigned.

Henry J. Fishbeck has been appointed staff metallurgist in the advanced tool engineering group at Pratt & Whitney Aircraft. **Spencer W. Deming** replaced Fishbeck as supervisor of metallurgical and chemical processing.

Edward O. Seits, North American Aviation's management coordinator, has been elected president of the National Association of Foremen.

Seits

Carpenter

Boyd Carpenter has become airport manager at Great Bend, Kansas. Previously station manager at Pueblo, Colo., for Continental Air Lines and Frontier Airlines, Carpenter is a licensed pilot, flight instructor and aircraft dispatcher.

A. L. Chabot has been promoted from superintendent of maintenance to director of maintenance and engineering for the entire Eastern Air Lines system.

Matthew J. Betley, appointed works manager for Aeroquip Corp., Jackson, Mich. He formerly held the same position for Electric Sprayit Corp.

A. S. Dix, formerly station manager for Eastern Air Lines in Daytona Beach has been promoted to station manager in Richmond. **H. N. Wheatley** moves from station manager Muscle Shoals to replace Dix at Daytona Beach, and **P. G. Scofield** takes over as manager at Muscle Shoals.

TRAFFIC & SALES

George J. Fischer has joined Aeroquip Corp., Jackson, Mich. as general sales manager. He previously was with the B. F. Goodrich Co., Akron, Ohio.

Fischer

Fred R. Erickson has been promoted from manager-airmail and express sales to director of cargo sales for Northwest Airlines **T. R. Nolan,** formerly manager of freight sales, promoted by NWA to the newly created post of assistant director-cargo sales.

James W. Beck appointed interline sales manager for Trans-Texas Airways, his previous position as regional supervisor of stations.

Robert J. Fraser, formerly with Clary Multiplier Corp. has been named eastern sales manager of the Kraynar Company's aircraft division.

George P. Braender has been appointed district sales manager of the Boston area for Brannff Airways. In his new position, Braender will head the lines recently opened Boston office.

Ray C. Wright has been promoted to sales manager of Stronghold Pacific Corp.

Fredrick H. Lee has been named to head the recently merged government and industrial sales divisions of R. M. Hollingshead Corp.

Laurence C. Tombs of Montreal has been nominated for the presidency of the American Society of Travel Agents for 1953. **R. T. Bellchambers** of Miami, and **Ralph C. Berry** of Kansas City are nominees for the one vice presidency.

Don Flower, general sales manager for Cessna Aircraft Co., has resigned.

The following employes in the aviation industry recently completed 20 years or more of service in the industry:

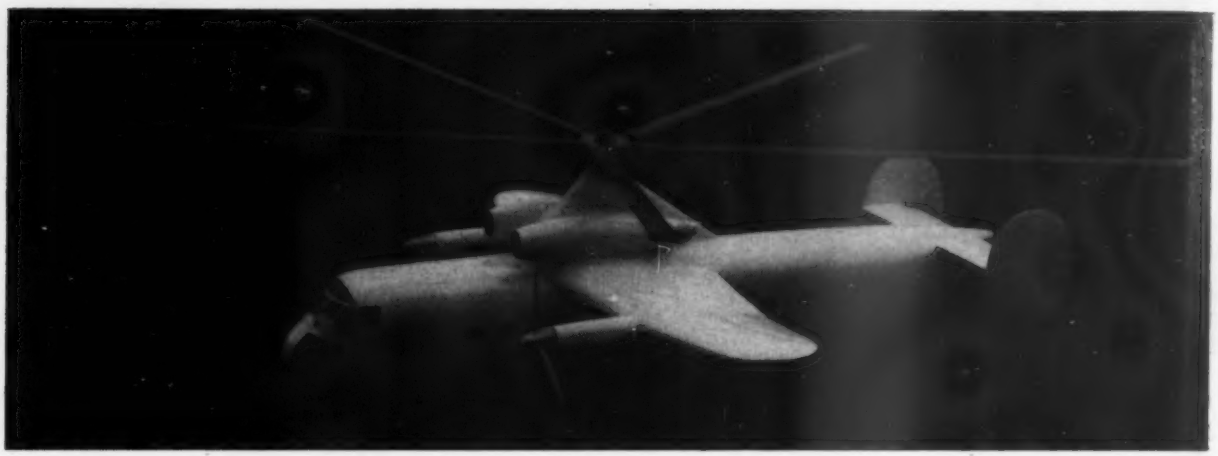
• **Dr. L. H. Slotemaker,** executive vice president of foreign relations, KLM Royal Dutch Airlines, 25 years.

• **Adam Fralik,** assistant foreman, Pan American World Airways. Latin American Division. 25 years.

• **A. L. Chabot,** director of maintenance and engineering, Eastern Air Lines, Miami. 21 years.

• **Bart Anderson,** mechanic. Eastern Air Lines, Miami. 20 years.

International Report



MODEL of Fairey Rotodyne shows five-bladed rotor.

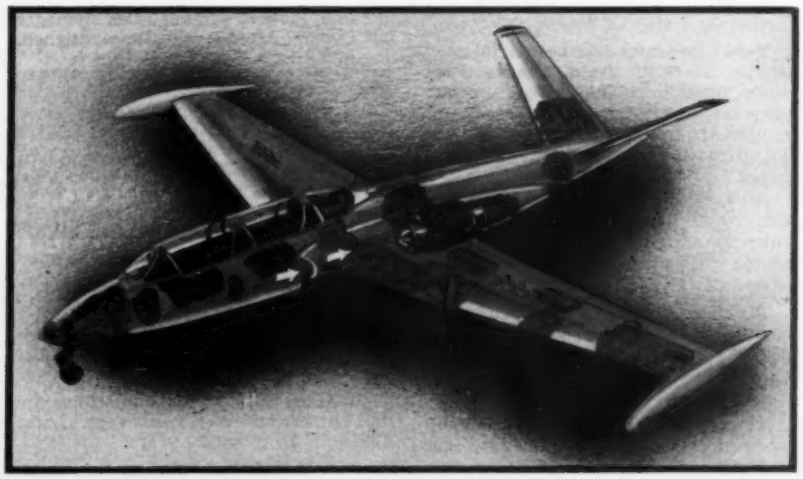
New 'Copter Would Cruise at 200 MPH

Among the latest British transport designs is the Fairey Rotodyne, a 31,000-pound convertiplane with a cruising speed about 50% higher than the present international speed record for helicopters.

Designed to carry a useful load of 13,000 pounds at 200 mph for a period of two hours, the Rotodyne has a power system that features mechanical simplicity with associated ease of maintenance. Twin-engine reliability is provided in both vertical and horizontal flight—two gas turbine units drive auxiliary compressors and the compressed air is passed to the pressure jets at the rotor tips and to turbine units driving propellers mounted in the wings. Control of this air is by a simple valve system.

In vertical flight the full power is taken by the rotors, whereas in cruising flight the greater percentage is taken by the wing engines. The whole of the fuselage is unrestricted and free from the mechanical drives and engines of conventional helicopters. The main turbine units are positioned above the fuselage. Moreover, the principle of unloading the 80-foot diameter rotor in forward flight and the use of five blades cuts down the vibration.

The unrestricted fuselage space makes the Rotodyne very suitable for freight work; rear "clam-shell" loading doors are under consideration for a freighter version of the model.



Cut-away drawing shows the heart of the world's first jet powered primary trainer. The French plane is powered by two Turbomeca Marbore gas turbines.

German Airports Busy, Statistics Show

The growing importance of Germany to the air transport industry is reflected in airport traffic statistics for West German airports for the first half of 1952. Aircraft movements totaled 46,732 and passengers handled numbered 652,736 (including 81,130 in transit). Freight amounted to 84,430,000 pounds (including 5,530,000 transits) and mail to 8,680,000 pounds (including 1,350,000 pounds transit).

In terms of aircraft movements, Berlin was in the lead (11,180), closely followed by Hamburg (10,654). Berlin also headed the list in terms of passengers (180,022) and freight (34,400,000 pounds), but for mail Frankfurt was first (3,090,000 pounds).

The statistics include West Germany's nine airports (Bremen, Dusseldorf, Frankfurt, Hamburg, Hanover, Cologne, Munich, Nuremberg, and Stuttgart) and West Berlin's Tempelhof airport.

Scandinavian Orders

Orders for eight Bell 47 helicopters for the Scandinavian air forces are now being finalized. The Norwegian air force will get six of the rotorcraft and the Danish Air Force will receive two. Deliveries are scheduled for 1953.

The Dassault MD 316, prototype of new feeder.

New French Feeder Transport to be Tested

Scheduled for flight testing before the end of 1952 is a new French feeder transport, the Dassault MD 316T, a descendant of the line of twin-engine planes which have been produced by the French private-enterprise company in the past few years. Prototype of the MD 316T, the MD 316 (photo above) is a smaller aircraft which is now undergoing its test program.

The MD 316T will carry up to 15 passengers: 10 passengers for a 935-mile stage length, or 15 for 500 miles. Using Wright C7BA1 engines driving reversible pitch propellers, the plane will have a top speed of 250 mph at 7,200 feet. Recommended cruising speed will be 202 mph at 6,000 feet. At a gross weight of 16,100 pounds the MD 316T will require a take-off run of 1,400 feet and will require 1,770 feet to clear a 50-foot obstacle.

Because Dassault has already produced over 200 very similar planes under military contracts, it will be possible to sell the MD 316T for the relatively low price of $70,000 to $75,000.

BOAC Revenue Gain Brings First Profit

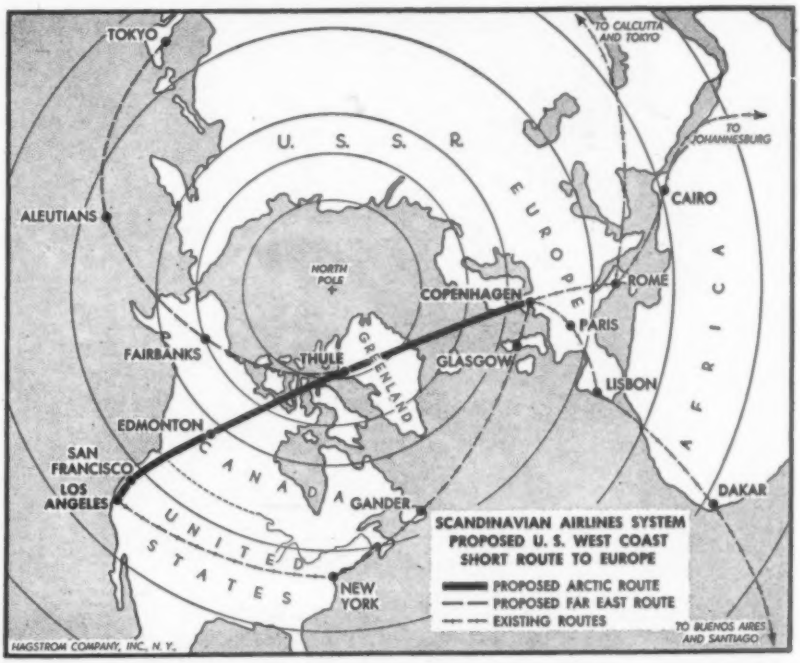
British Overseas Airways Corp.'s first net profit in its history was made during its 1951-52 fiscal year ended March 31, 1952: $769,997. This contrasts with the previous year's deficit of $2,783,198.

BOAC's total revenue rose by some $6 million to $93,990,014, whereas operating expenditures increased by $12,600,000 to $90,061,443. Cost of each capacity ton-mile flown was reduced from 46.1 to 45.3 cents and the average rate of revenue was raised from 67.1 to 70.5 cents per revenue ton-mile.

Load factor improved from 59.7% to 65.7% and break-even load factor dropped from 75% to 65%. Mail revenue increased from $17,334,374 to $24,496,343 and freight revenue from $6,493,645 to $7,662,412.

Sir Miles Thomas, chairman of BOAC, has predicted that the current year's financial results may be less favorable than those for the last fiscal year because of a net loss of $700,000 occasioned by the U. S. oil strike and a drop in mail revenue.

Not all the corporation's subsidiaries operated in the black in 1951-52. British West Indian Airways, BOAC's major subsidiary, reported a loss of $265,000 (against over $800,000 in the preceding year), and Bahamas Airways lost $285,000. Aden Airways made a profit of $65,000, whereas another Middle East subsidiary, Gulf Aviation, incurred a loss of $31,000 in its first six months of operation.



SAS Plans Exploratory Polar Flight

Scandinavian Airlines System next month will make the first flight by a commercial transport over a new route between the United States and Europe —via the North Pole. Regular trans-polar commercial operations will start as soon as government authorizations have been received.

The aircraft designated to blaze the trail will be a Douglas DC-6B which will make its delivery flight from Los Angeles to Stockholm via the USAF's new base at Thule in northwestern Greenland; other intermediate landings will be made at San Francisco and Edmonton, Canada. The new route measures about 6,290 miles, some 1,600 miles less than via New York.

The trans-polar route will also be used by a proposed service to Tokyo via Thule, Alaska, and the Aleutians. This will connect with the present Scandinavian service to Tokyo via India, thus giving SAS a complete round-the-world route. The over-the-pole routing to Tokyo will cut journey time between Scandinavia and Japan by one-third. The polar route to the West Coast will offer time-savings almost as sensational, particularly for residents of California and the Pacific Northwest.

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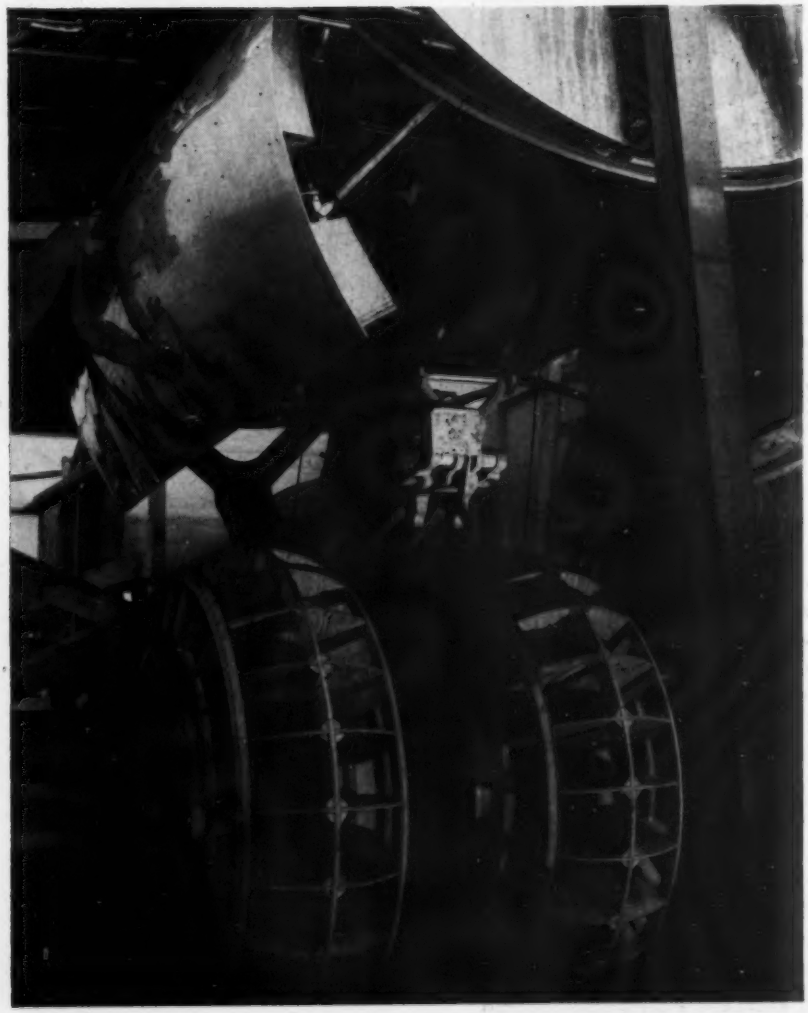
TRANSPORTS

...in production

Final assembly line for Convair 340's is shown for first time with a group of the 44-passenger transports nearly completed. Production is increasing, with about 180 of the aircraft already on order.



...and in mock-up

Mock-up of DC-7 wheel well, showing the main gear. Landing gear of Douglas' newest transport is full retractable tricycle, incorporating two sets of dual-type main wheels and a steerable nose wheel. Tread of main wheels is 24 ft. 8 in. Wheel base (fore and aft) is 36 ft. 2 in. Feature of the main gear is that it can be used as an effective speed brake. This equipment is designed to be lowered at air speeds up to 410 mph at 20,000 ft.

Production Spotlight

Multiple Source Production Pays Off

The program to set up multiple sources of aircraft and engines in case of emergency, laid out by Navy and Air Force mobilization planners shortly after World War II and fostered by civilian defense leaders after Korea, has started to pay dividends. Many of the second and third sources are already in production and the rest are not very far away.

With the exception of the USAF-owned plants at Omaha and Orchard Place, Chicago, every government-owned standby facility is in operation. The military has no plans for plane production at Omaha, currently used for storage of machine tools, and it appears the Chicago installation (which was slated to produce Fairchild C-119's before the stretchout) will probably not be utilized either.

But other government reserve plants and some new ones built under the DPA certificate of necessity program are either already in production or very close to it.

Bomber Situation

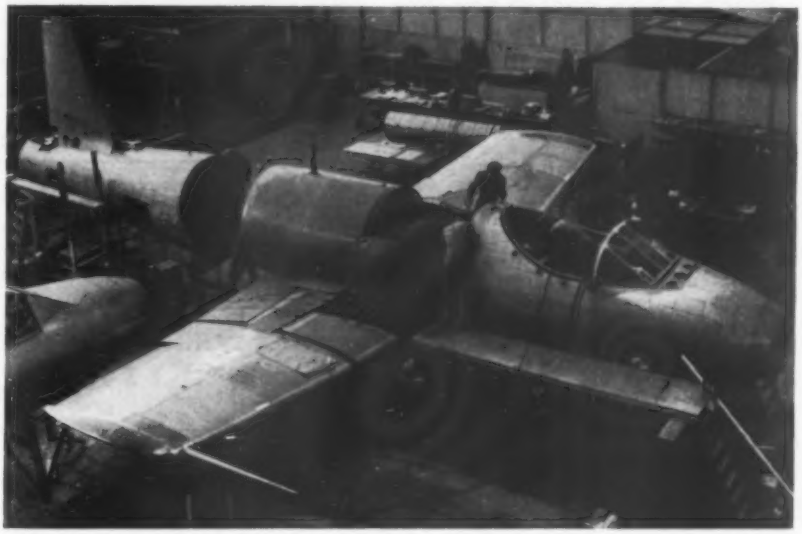
In the bomber field, Douglas-Tulsa and Lockheed-Marietta are expected to start turning out Boeing B-47's early next year.

As for fighter aircraft, General Motors at Kansas City should finish its first Republic F-84 before 1952 ends, and Temco will probably be producing the McDonnell F3H for the Navy in the spring of 1953.

Only one multiple source has been set up for cargo planes, Kaiser-Frazer's version of the Fairchild C-119, already in production, but this is to phase out as the Chase C-123 goes in at Willow Run.

Second sources in the power plant field are also well along in production. Reciprocating engine builders include Kaiser-Frazer, which delivered its first Wright R-1300-1 in February; Chevrolet at Tonawanda, N. Y., which has already turned out some Wright R-3350-26's but is switching over to compound R-3350's, with first deliveries in November; Ford-Chicago, which produced about 20 Pratt & Whitney R-4360's before converting to J-57 jets; and Nash, which is expected to finish its first P&W R-2800 about the first of the year.

In the jet engine field, Buick has already delivered its first Wright J-65's; Studebaker has started producing General Electric J-47's, and Packard is expected to join as a third J-47 source very shortly; Ford-Chicago will not get deliveries started on J-57's before late next summer; and Ford and Lincoln-Mercury divisions at Wayne and Romulus, Mich., will start turning out Westinghouse J-40's in about six months. Plans to have Chrysler build the P&W J-48 were wiped out as the plant is now in standby status.



Fokker production line shows assembly set-up for the S-14 jet trainer.

Convair Sales Up $48 Million for 1952 period

Although Consolidated Vultee Aircraft Corp.'s nine month sales jumped about $48 million over the same period in 1951 ($274 million vs. $226 million), its net income only went up from $5,922,941, or $2.50 a share, for three quarters of 1951 to $6,480,921, or $2.73 a share, for the same nine months ended August 31. Board chairman Floyd B. Odlum said, however, some fourth quarter profits would not be subject to Federal tax because of the availability of capital loss carry-forwards for tax purposes.

Odlum also reported that "all present indications" are that Convair's work load and earnings will not be affected whether or not the XB-60 jet bomber is ordered into production.

Los Angeles Indicts 15 On False Claims, Kickbacks

Fifteen indictments charging false claims and kickbacks on aircraft procurement contracts dating from 1947 have been returned by a Los Angeles grand jury and the FBI is reported investigating at least 15 more defense fraud cases in the Los Angeles area.

Among those indicted were Richard D. Maystead, Millard A. Wachter and Darrold R. Wetmore, former executives in the manufacturing division of Pacific Airmotive Corp., who are alleged to have received kickbacks totaling $80,000 through deals with vendors.

The president of Jumbo Steel Products Co., Azusa, Calif., Robert N. Simpson, and his contract manager, John Steele, were accused of submitting $323,000 in false claims. That firm makes the work stands used to service the tail of the Convair B-36.

Paul W. Williams of Williams Tool Co. was said to have paid $6,500 in kickbacks to Harold W. Hauptman on purchases by Ryan Aeronautical and $4,675 to Dean J. Meador, a buyer for Rohr Aircraft. Stanley A. Lever and Carl E. Winter, former Hughes Aircraft employes, were alleged to have illegally received $2,605 in a deal involving a subcontract.

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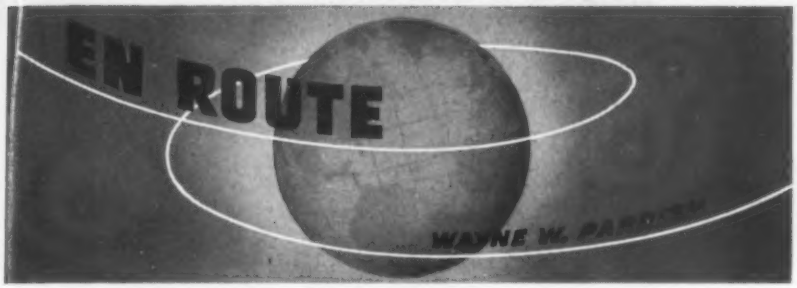

Cheese. I don't like cheese but I can give you a full report on a visit to the original Roquefort cheese center in south central France. And as part of my education I learned for the first time that Roquefort cheese is made solely from sheep's milk.

There's actually a town by the name of Roquefort, a small place in the chalk hills section made up of very attractive sheep raising country. No big farms, but a lot of little ones. There are 500 sheep's-milk-producing centers all feeding into nine main centers, and the one my wife and I visited was in the center of the town which gave its name to this particular kind of cheese.

In the small town is a very nice hotel, called the Grand. The dinner was 100% delicious, even though I left out the cheese, and only spoiled by some mighty hungry flies which were determined to partake in the many courses. The town isn't easy to find and isn't promoted as we would promote such a place in the U. S., but it's well worth going out of the way to find.

From Roman caves . . .

Roman Caves. It seems that the Romans who overran France a great many centuries ago began this cheese industry and discovered how to perfect it in the large chalk caves. Cracks extending from the top of the hills keep air circulating through the caves at a temperature nicely cool and so even that it doesn't vary one degree all year long. The entire cheese operation takes place in the caves and the one we visited had a half dozen stories in it—elevators and all.

The cheese is made into large cakes which are laid on one side for three days and then turned over to lay on the other side for three more days. There are some 40,000 cheeses in this initial process at all times during the seven months that the factory is open each year. All told there were 500,000 cheeses wrapped in tin foil in refrigeration waiting to be shipped. I gathered that the market wasn't at its best and that the local cheese people would welcome some orders.

No Worms. I can remove that rumor you heard about Roquefort cheese being good because worms eat into it. It isn't so. When each cake is numbered, top and bottom, it is also drilled with a series of holes. These air holes are for the mold to form in. Actually, a little mushroom forms at the bottom of the hole and expands. In due course, in the damp coolness of the caves, a wonderful-tasting cheese is formed. Or so they tell me—I've never eaten any.

We saw the testing room where a group of local experts in smocks and berets samples cheeses all day long. They can tell instantly how strong a particular cheese is, and then direct the soft, light cheese to Paris, northern France, and Belgium. The strongest cheese goes to the U. S. and southern France.

Healthful. In the wrapping room the women scraped the green mold off before wrapping in the foil. If red shows in the mold, this means that the penicillin has accentuated impurities. Roquefort is known for its health-giving properties—penicillin coming from mold.

Not caring for cheese I wondered if I could last out a visit through the caves. It wasn't bad at all, although the factory—operated by a cooperative society—has a 15-minute recess morning and afternoon when all employees must go out into the fresh air. Roquefort cheese is a big industry but it needs some business. Be sure, however, that you get the original imported French stuff. Over there the big cakes sold for about $4.00 or $4.50.

Sucker Bait. In contrast to a real working showcase like Roquefort, there are some places in France that really take the American tourist for a sucker. The town of Grasse, not far from Cannes and Nice on the Riviera, is historically a perfume center, dating back to the days when perfumes were really made of flowers.

Today there aren't enough flowers in the world to make perfume. It's all done with oils and chemistry and new techniques and that's why everybody has perfume. When it was made with flowers there was only enough for the few who could afford it.

But Grasse remained in people's minds as the perfume center and in actual fact quite a few basic oils are still made there, but the factories are hardly showplaces. Meantime the tourist bait is most profitable in a few places which parade as perfume manufacturers.

Phoney Factory. A big luxury steamship with American tourists was in the harbor for a few days and it seems that every woman on the ship "simply had to" visit Grasse and buy perfumes "at the factory." I would imagine that most of them left France never knowing that all of the perfumes they bought "at the factory" had been shipped down from Paris, where all bottling takes place, and that the "factory" they were escorted through was a complete phoney. But there's nothing like an American housewife for falling for foreign accents and salesmanship.

Out of curiosity my wife and I followed a group of American women into the factory. First we were shown a soap-making machine, an obsolete model that obviously wasn't used very much. The women "Oohed" and "Aahed" as though a soap machine was a big attraction.

Then came a shaving cream machine, just an ordinary machine that poured shaving cream into a tube, and this one machine was again a demonstration model. No employees were at work in that shop. The guide called the soap pure castile, but it was really only common olive oil soap.

. . . and phoney factories

Then the Payoff. Then we saw some vats which were supposed to hold perfume oils for two or three years, but the vats weren't big enough to hold enough basic oils for more than a week's supply of perfume at the rate this phoney outfit was selling it.

In another room a few employees were filling plain bottles with something or other, tonic I believe. At no time did any of the tourist women ask where the flowers where or ask about how perfume is made. The guide kept everything moving with charming gab and attempts at humor.

Then came the payoff. We were all ushered rapidly into a series of showrooms which were as big, if not bigger, than the entire rest of the "factory." Here were great quantities of perfume for sale at prices that were anything but cheap. The salespeople wore smocks as though they had just come out of a chemistry lab. I've rarely seen such high-pressure selling—and the American women bought oodles of perfume at what they thought were bargain prices.

Outside were the guides from Nice and Cannes with their limousines waiting for their commissions for having brought rich tourists to the bait. It was all a little silly and a sad commentary on how Americans throw money around abroad.

to

south america

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Mr. A. L. Simmons just made the trip and he says so. As soon as he returned to New York, we rushed in to his Gateway Tours office and asked how he liked Latin America by Braniff. His comments were so flattering we flushed with pride—because who knows better the value of friendly transportation and personal service than Mr. Simmons.

To show he's a man of his word, Mr. Simmons then outlined his plans to build a series of tours featuring Gateway services and our own. We couldn't have been more pleased. His plans have materialized—they're in print and beautifully illustrated, too. In fact, we think every travel agent with a keen sense of timing (it's spring now in South America) will want to get into the act. And Mr. Simmons will be glad to send some of his brochures your way for the asking!

Mr. A. L. Simmons president, Simmons Gateway Tours.

(left) Mr. A. L. Simmons in Rio discussing plans for new Gateway Tours with Charlie South and John Benson, both of Braniff.

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New Approach Seen For Mexican Talks

A "fresh approach" to the talks with Mexico on bi-lateral air transport rights is expected when the talks are resumed. The change in tone was predicted by participants in a meeting of interested airlines, the CAB, and the State Department, held by CAB Chairman Donald W. Nyrop.

One official said that US demands will not be as great as earlier ones. The effect of President Truman's recent withdrawal of White House approval of three inoperative US certificates for service to Mexico was also discussed, with several airline representatives expressing the view that the certificates had not been voided but had merely had their inoperative status more definitely assured pending the outcome of the talks.

Airlines represented at the meeting included Eastern, Pan American, American, Braniff, Western and C & S.

Study Of User Charges Approved In Commerce

A tentative long range program for the study of possible user charges in all phases of transportation has been approved by Jack Garrett Scott, Undersecretary of Commerce for Transportation.

The program of study will form a basis for recommendations by the Secretary of Commerce for proposed legislative and administrative action. Among the questions to be considered are (1) prevention of unreasonable discrimination between various types of transportation, and (2) limitation of government assistance to transportation to situations in which it is clearly justified.

CAOA Studies Ideal Corporate Aircraft

Growing interest by North American Aviation in the business aircraft field was seen by some members of the Corporation Aircraft Owners Association as the explanation for the presence of an NAA representative at the CAOA convention in Chicago. Speculation included the possibility that the firm has a twin-engine corporate aircraft on the drawing board.

Requirements for a corporate aircraft were threshed out in round table discussions at the meeting. Most members wanted: comfort, accommodations for eight, tricycle gear, cabin pressurization, and cruising speed of 250 mph.

New Pension Plan Not Tied To Social Security

A pension plan entirely unrelated to social security benefits has been offered by Curtiss-Wright Corp. to its UAW-CIO workers and has been accepted by them. The plan is a company plan, however, and was not designed exclusively for the UAW locals involved.

Under the plan, pensions would range from $15 a month after 10 years of service to $50 a month after 30 years. The company will make all payments.

C-W also agreed to a five-cent-an-hour boost for Local 669 employes and $2 a week for the office workers represented by Local 300.

Second Quarter Profits

A profitable second quarter for the domestic scheduled trunk airlines was indicated by net operating income of over $27 million, nearly triple the amount that had been earned in the first quarter. The figure was, however, only some $500,000 over the similar total for the same period in 1951.

West Germany To Buy Secondhand Aircraft

Purchase of used aicraft to equip a West German airline will get under way with the organization of a procurement company to be known as the Gesellschaft fur Luftverkehrsbedarf. Thirty aircraft will be bought initially: 15 twin-engine and 15 four-engine.

The West German cabinet has voted the equivalent of $1.5 million for the formation of the company, and preliminary steps toward pilot training have begun, according to Transport Minister Dr. Hans Seebohm. The procurement company is designed to be replaced by a full-fledged airline after the ratification of the "peace contract."

Make Civil Reserve Fleet International?

An international civil reserve air fleet, similar to the program now set up for domestic U.S. carriers, has been suggested by Harold R. Harris, vice president-Atlantic Division, Pan American World Airways. By drawing upon the aircraft of all the Western powers, 33% additional lift might be added to the capacity of American carriers, Harris told the Philadelphia chapter of the National Defense Transportation Administration.

U. S. civil airlines could deliver more than a division a day to Europe from the United States, Harris estimated, or 2,000 tons of cargo. This potential should double during the next two years as aircraft now on order are delivered.

Domestic Subsidies Less Than Expected

The ups and downs of domestic subsidy payments were revised for 1952 and 1953 in the CAB's administrative subsidy separation report released at the beginning of the month. The figure for this fiscal year was revised downward by about $1.7 million, while 1953's figure went up almost as much. First estimate for 1954 is that it will be approximately $1 million below the 1953 total.

Service pay continues to rise sharply. For fiscal 1952, the revised report places the total for domestic lines at $33.7 million, up from $29.5 million, the original estimate. By 1954, it is estimated, the total domestic service pay will reach $42.9 million.

XB-52 Flies

First flight of the Boeing XB-52 came October 2 as it was airborne for two hours and 42 minutes with A. M. ("Tex") Johnston of Boeing and Lt. Col. Guy M. Townsend of the Air Research and Development Command at the controls. The YB-52 made its first flight on April 15.

Low Cost 'Copter Predicted

Airline service by 50-passenger helicopters at less than seven cents a passenger-mile is a definite possibility by 1960, providing manufacturers can find out what the carriers will want, according to Frank N. Piasecki, chairman of the board, Piasecki Helicopter Corp.

The transport helicopter should be able to replace fixed-wing aircraft on

runs of 350 miles or so by 1957, Piasecki indicated. Such flights make up 54% of present domestic traffic.

To bear out his views on the speedy development of the helicopter, he reminded an audience at the National Aeronautical Meeting of the Society of Automotive Engineers that in the last 10 years rotary wing aircraft have increased their payload by almost 15 times, increased their range six times, and doubled their cruising speeds.

On a basic rate structure of 6.8 cents per passenger-mile, Piasecki thought that helicopters could compete favorable with fixed-wing aircraft, the rate for which can exceed 8.8 cents for short hauls, limousine costs included.

First Mystere Flight

First flight of the Dassault Mystere IV was made at the end of last month at Meaux, France, and proved "very satisfactory." The French jet fighter figures prominently in the off-shore procurement program (AMERICAN AVIATION, Sept. 29).

Details On C-130

Production version of the Lockheed C-130 turboprop Air Force transport will have a completely pressurized main cabin for high-altitude troop transport missions, a low slung fuselage (floor 45 inches from the ground), and an integral loading ramp for heavy equipment.

Navy Hauls Transports To Balk Sabotage

Sixteen transport planes belonging to Civil Air Transport are being carried from Hong Kong to the U. S. west coast by the U. S. Navy on the light escort carrier Cape Esperance. Occasion for the unusual action was the fear that the aircraft and valuable engines and spare parts would be sabotaged by Communists on October 1, anniversary of the Chinese People's Republic, if they were still in Hong Kong on that date.

Civil Air Transport was formally awarded a group of forty planes by the British Privy Council this summer, after a court fight between it and the Chinese Communists lasting several years. The remainder of this group was scheduled to be removed by commercial shipping.

The fleet was originally owned by Central Air Transport Corp. of China, from which CAT bought the aircraft and engines for $2,800,000 when the Communists took over the country. The equipment is now valued at over $7,000,000.

ALPA Decision Due

A decision by the U. S. Appeals Court in Chicago as to whether David L. Behncke or Clarence N. Sayen is to be the president of the AFL-Air Line Pilots Association was expected this week. The court is to rule on whether a Federal District Court decision reinstating Behncke should be overturned. Sayen is now president under a temporary stay of the District Court order. If the Appeals Court finds for Behncke, a majority of the pilots are expected to pull out of ALPA and set up the Air Transport Pilots Association.

Three Named to AAC

CAA Administrator Charles F. Horne has named three new members to serve three-year terms on CAA's 12-man Airports Advisory Committee. They are Douglas Langstaff, executive director, City of New Orleans Aviation Board; Francis I. (Jack) Bolton, manager for Port Columbus Airport, Columbus, O.; and Emory L. Cox, aviation director, Wichita, Kans.

At the same time, Robert W. F. Schmidt, manager of Tucson, Ariz., Municipal Airport, was reappointed for another three-year term.

PO Asks That Sale Profit Offset Mail Pay

The Post Office Department last week urged CAB to offset the profits of Pioneer Air Lines' DC-3 sale against the carrier's future mail pay needs. According to the PO, Pioneer made $1,008,554.78 profit on the sale of the DC-3's to the Air Force, and requests that its new Martin 2-0-2 operations be underwritten with mail pay amounting to $1,849,617.

The PO interposed no objection to underwriting the new aircraft operation with mail pay if CAB should so decide. But the Government department claims the DC-3 sale took place during the current open mail rate period and therefore profits should be offset against mail pay need.

Key to the controversy is whether the DC-3 sale was legally constituted before or after April 1, 1952, date on which Pioneer challenged its then final mail rate. If before April 1, as Pioneer contends, there is a strong point that the off-set provision may not be invoked. If after April 1, as the PO claims, the carrier may be forced to underwrite its new Martin services with its own profits.

VOR Installed on UAL Douglas Equipment

All the United Air Lines' Douglas DC-6's and 28 DC-3's have been equipped with dual omni-range equipment. The company will soon adopt VOR as its primary navigational aid. At present, UAL pilots are simulating VOR-IFR flights during visual flight conditions.

The company claims to be the first to use VOR regularly as a primary navigational aid in scheduled service, having started it on the Boise-Reno run in September, 1949. Six UAL Stratocruisers have been so equipped since 1951 and the company's fleet of 50 CV-340's is being delivered with it installed.

Western Links Up With Los Angeles

Direct one-carrier service by Western Air Lines between Twin Cities and Los Angeles was made possible by CAB recently when it authorized a connecting link between Rapid City and Salt Lake City, via Casper. The award, approved by a 4-1 CAB vote with CAB Chairman Nyrop dissenting, provides a direct connection between Western's main system and the routes of Inland Air Lines, now wholly absorbed by Western.

New route is issued on a temporary three-year basis through December 31, 1955. In authorizing it, CAB rejected various interchange proposals for Twin Cities-Los Angeles service and dismissed an investigation of its own aimed at a possible interchange.

Tigers' Expect Freight To Hit Six Million

The Flying Tiger Line expects to have air freight revenues in excess of $6,000,000 for 1952, an increase of $1,500,000 over 1951, according to George T. Cussen, vice president.

Domestic freight revenue for the first eight months of 1952 was $3,896,663, a 32% gain over the same 1951 period, he said, adding that "in the past three months, however, our gain over the preceding year has jumped to an average of 58% a month. We expect this rate of gain to continue for the balance of the year . . . "

Figures do not include a transcontinental Navy contract operation which the Tigers will start in October and which will add $200,000 to $300,000 a month to revenues.

Production expanded to 514% of pre-Korea level

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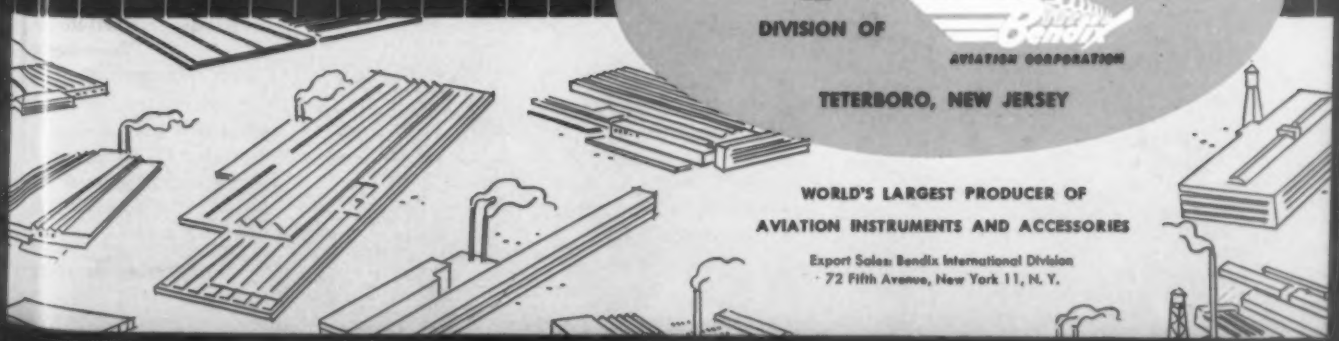

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First Scheduled Passenger Airline—1914

YESTERDAY . . . the plane used for regularly scheduled airline service was the Benoist Flying Boat, flown by Tony Janus (center, left) in 1914 from St. Petersburg, Florida to Tampa—twenty-two miles away. On New Year's Day of that year, six thousand excited spectators gathered to witness the inauguration of the St. Petersburg-Tampa Airboat Line in daily scheduled flights.

TODAY . . . plush ambassador service daily between New York and Los Angeles was recently introduced by TWA-Trans World Airlines, with the first three of their order of ten 64-passenger Super Constellation sky giants.

■ The great strides commercial aviation has made since the days of the country's first scheduled passenger airline is typical of the progress made in every phase of aeronautical development. The improvements in aviation fuels and lubricants run parallel.

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